

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

REC'D 01 MAY 2001

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PCT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference 15349 HB/hw	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE99/02266	International filing date (day month year) 03-12-1999	Priority date (day month year) 03-12-1998
International Patent Classification (IPC) or national classification and IPC ₇ B65D 5/22, B65D 5/50, B65D 5/52		
Applicant Ågren, Göran		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

CORRECTED
VERSION

Date of submission of the demand 19-06-2000	Date of completion of this report 03-04-2001
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Anna Åhlander/itw Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02266

I. Basis of the report

1. With regard to the **elements** of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-15, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under article 19
 pages _____, filed with the demand
 pages 1-5, filed with the letter of 09.03.2001
- ☒ the drawings:
 pages 8, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.These elements were available or furnished to this Authority in the following language english which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02266

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☐ not complied with for the following reasons:

This application contains the following inventions or group of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1.

I: Claims 1-6: a hollow walled display tray.

II: Claim 7-15: a lid.

III: Claim 16-18: a lid and bottom insert.

The inventions are distinct, each from the other because of the following reasons:

The special technical feature of invention I is a display tray with hollow walls.

The special technical feature of invention II is a display box lid. The lid is pivoted to a closed position closing the box or to an upright position, exposing the contents of the box. In the upright position, the side flaps of the lid are located over the side walls of the box. In closed position, the side flaps of the lid are located inside the box.

The special technical feature of invention III is a lid and bottom insert. The insert comprises a bottom that is connected to a double folded lid.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos. _____

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02266

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-6, 10-18</u>	YES
	Claims	<u>7-9</u>	NO
Inventive step (IS)	Claims	<u>1-6, 10-18</u>	YES
	Claims	<u>7-9</u>	NO
Industrial applicability (IA)	Claims	<u>1-18</u>	YES
	Claims	<u></u>	NO

2. Citations and explanations (Rule 70.7)

The invention relates to a package comprises a bottom, double and hollow walls protruding upwards therefrom and a cover. The package is formed by a foldable blank and comprises locking tips for locking the package in erected state.

D1: US 3 539 094 A
D2: US 2 447 243 A
D3: US 1 903 461 A
D4: US 2 647 621 A

Document D1 discloses a hollow wall tray with corner lock. The tray comprises of a bottom (1) and hollow walls protruding upwards therefrom. Each wall has an internal (8, 17) and external (6, 15) wall partition located at a mutual distance while forming a cavity there between. Panel portions (7, 16) form upper edges of the walls of the package and connect the internal and external wall portion to each other. The package is erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed. At a corner formed by two adjoining walls in an angle toward each other is a locking tip (19) connected with the internal wall portion (17) of a first of the walls. The locking tip protrudes into the cavity of the second of the walls in the corner (fig. 6). The locking tip is arranged to lock the first wall in place by bearing against the inner side of the panel portion (7) of the second wall. The internal wall portions have flaps (9, 18), that bear upon the upper side of the bottom portion (1) in the erected state of the package and are located below the panel portions (7, 16). See fig. 1, 2, 6.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02266

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

The invention claimed in claim 1 differs from D1 in that the locking tip bears against the inner side of the panel portion (21, 23) of the second wall at a position adjacent to a folding line between the panel portion and the external wall portion (17, 19) associated thereto. To avoid that the package is effected in an unlocking direction it is advantageous that the contact point between the locking tip (25, 26) and the panel portion (21, 23) is at a position adjacent to the folding line between the panel portion and the external wall portion associated thereto. Then the lever arm between the contact point and the external wall portion will be as short as possible.

Document D2 describes a double-walled tray with internal (16) and external (17) wall portions. The wall assemblies are formed by folding the blank outwards away from the middle of the package. Locking tips (28) are connected with the internal wall portions (16, 18) and protrude into the adjoining cavity. The locking tips have their outer ends in contact with each other and the inner side of the external wall portion. The locking tips also bear against the inner side of the panel portion (22) at a position adjacent to a folding line between the panel portion (22) and the external wall portion (19) associated thereto. See fig. 3, 8, 9, 12. However in this case the lever arm between the contact point (between the locking tip 28 and the panel portion 22) and the internal wall portion (16) is long, which is a disadvantage. To avoid that the package is effected in an unlocking direction the lever arm must be short.

Neither D1 nor D2 describe the advantage of a short lever arm and not even a combination of the documents D1 and D2 will result in a package according to the invention. Consequently, the invention claimed in claims 1-6 is novel, is considered to involve an inventive step and to be industrially applicable.

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE99/02266

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

Document D3 discloses a package comprising a bottom, walls protruding upwards from the bottom and a cover. The cover is provided with a folding notch (21, 22). The cover is folded to a double folded state. Then the cover is located at one of the walls of the package while mainly the whole room in the package is left free. The cover has flaps at two edges extending substantially perpendicularly in relation to the folding notch. The flaps protrude into the interior of the package in the closed position of the cover. The flaps extend along the whole length of the edges of the cover (see fig 1, 2). Also document D4 describes such a package see fig. 7-10. Thus, the invention according to claims 7-9 does not differ from what is disclosed in D3 and is therefor not novel.

The invention claimed in claims 10-15 describes a cover that forms a part of an attachment placeable in the package. Neither document D3 nor D4 suggest that solution. Therefore the invention claimed in claims 10 - 15 is novel, is considered to involve an inventive step and to be industrially applicable.

The invention claimed in claims 16-18 describes a package comprising a bottom, walls protruding upwards from the bottom and a cover. The cover forms a part of an attachment placeable in the package. None of the cited documents in the search report disclose such a cover. Consequently, the invention claimed in claims 10-18 is novel, is considered to involve an inventive step and to be industrially applicable.

Claims

1. A device at a package which in its erected state comprises a bottom (2) and hollow walls (3-6) protruding upwards therefrom, which walls each has an internal (12-15) and an external (16-19) wall portion located at a mutual distance while forming a cavity therebetween, and panel portions (20-23), which form upper edges of the walls of the package and which connect the internal and external wall portions to each other, said package being made of a foldable blank having a bottom portion (7), wall assemblies (8-11) protruding therefrom and comprising the internal (12-15) and external (16-19) wall portions and the panel portions (20-23), and an arrangement for locking the package in its erected state, which arrangement comprises one or more locking tips (25, 26, 32, 33), said wall assemblies (8-11) of the blank having flaps (24, 27, 31, 34) at their ends turned away from the bottom portion (7), said package being erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed and the flaps bear upon the upper side of the bottom portion (7) in the erected state of the package and are located below the panel portions (20-23), characterized in that at a corner formed by two adjoining walls (3-6) extending in an angle toward each other, a locking tip (25, 26, 32, 33) is connected with the internal wall portion (12-15) of a first of the walls by means of a folding line, which locking tip protrudes into the cavity of the other of the walls in the corner and which is arranged to lock the first wall in place by bearing against the inner side of the panel portion (21, 23) of the other wall at a position adjacent to a folding line between the panel portion and the external wall portion (17, 19) associated thereto.

2. A device according to claim 1, characterized in that each of the flaps (24, 27, 31, 34) are arranged to bear against the inside of the external wall portion (16-19) associated thereto by its outer edge.

3. A device according to any previous claim, characterized in that the package has an even number of walls (3-6).
4. A device according to any previous claim, characterized in that at a package with four walls (3-6), two opposite (3, 5) of these walls have two locking tips (25, 26, 32, 33) connected with their internal wall portions (12, 14) and located in the cavities of adjoining walls (4, 6) for locking the walls having the locking tips in place by bearing against the inner side of the panel portions (21, 23) of the walls without such locking tips.
5. A device according to any of the claims 1-3, characterized in that the package forms a non-closed construction by having two walls only and a bottom.
6. A device according to any previous claim, characterized in that two locking tips (25, 26, 32, 33) received in a cavity of a wall (4, 6) and associated to two adjoining walls (3, 5) have their outer ends in contact with each other and the inner side of the external wall portion (17, 19) of said wall (4, 6), the cavity of which receives the locking tips.
7. A device at a package comprising a bottom (2), walls (3-6) protruding upwards from the bottom and a cover (43), said cover (43) being provided with a folding notch (44) for enabling folding of the cover to a double folded state, in which state the cover is located at one of the walls of the package while leaving mainly the whole room in the package free and while protruding upwards above the upper edge of the walls of the package, and said cover (43) has flaps (76) at two edges extending substantially perpendicularly in relation to the folding notch, above which flaps the folding notch (44) extends so that also the flaps are double folded in the double folded state of the cover and located above two opposite walls of the walls of the package, characterized in that the flaps (76) protrude into the interior of the package in the closed position of the cover and that the

flaps (76) extend along substantially the whole length of the edges of the cover (43), which edges extend substantially perpendicularly to the folding notch (44).

- 5 8. A device according to claim 7, characterized in that the cover (43) has a cut (45), the ends of which connect to the folding notch and the extension of which is different from the folding notch for providing the outline of the cover desired in its double folded state when double folding the cover.
- 10 9. A device according to claim 8, characterized in that the cut (45) is substantially semicircular.
- 15 10. A device according to any of claims 7-9, characterized in that the cover (43) forms a part of an attachment (46) placeable in the package.
- 20 11. A device according to claim 10, characterized in that the attachment (46) and the package (1) comprise locking means (51, 52; 54, 55) co-operating for locking the attachment in a first state, in which the cover is closed, and in another state, in which the cover is double folded.
- 25 12. A device according to any of the claims 10 and 11, characterized in that the attachment unit has a bottom portion (47) for placing against the bottom (2) of the package and a panel element (48) connecting the bottom portion and a cover portion of the attachment, which panel element extends along and close to one of the walls of the package when the attachment is placed
- 30 in the package.
- 35 13. A device according to claim 12, characterized in that either the panel element (48) or the package (1) has a recess (49, 55) and that a first locking tip (50, 54) designed in the adjoining wall of the package or in the panel element is introducable in the recess for locking purposes.

14. A device according to claim 11, characterized in that the looking means for looking the attachment (46) in its first state, in which the cover (43) is closed, comprise a second locking tip
5 (51) on the attachment or the package for engagement with a second recess (52) on the package or the attachment.

15. A device according to claim 13, characterized in that the attachment (46) has a third locking tip (54) arranged to engage
10 with recesses (49, 55) arranged in the panel element (48) and one of the walls of the package in the double folded state of the cover for holding the cover in its double folded state.

16. A device at a package comprising a bottom (2'), walls protruding upwards from the bottom and a cover (43'), characterized
15 ized in that the cover forms part of an attachment (46') placeable in the package, in that this attachment has a bottom portion (47') and means (56, 57) for locating this bottom portion at a distance above the bottom of the package so that a double bottom
20 is created, in that the attachment unit (46') forms the cover by means of two cover panels (61, 62) arranged at a mutual distance, which cover panels are pivotable with respect to each other as well as in relation to the rest of the attachment, and in that at least one of the cover panels (61, 62) has a locking tip
25 (65, 69, 75), which automatically moves into locking engagement with a recess (66, 76) in the package when pivoting the present cover panel towards the closed position and which moves out of the locking engagement when pivoting the present cover panel towards the open position.

30 17. A device according to claim 16, characterized in that the bottom portion (47') of the attachment is connected with the panels (61, 62) forming the cover through a panel element (63) arranged to extend parallel and close to one of the walls of the
35 package when the attachment unit is located in the package.

18. A device according to any of the claims 16 or 17, characterized in that the bottom portion (47') of the attachment has one or more tips (49) for locking/holding engagement with corresponding recesses (60) in the package.

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 26 July 2000 (26.07.00)	
International application No. PCT/SE99/02266	Applicant's or agent's file reference 15349 HB/hw
International filing date (day/month/year) 03 December 1999 (03.12.99)	Priority date (day/month/year) 03 December 1998 (03.12.98)
Applicant ÅGREN, Göran	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

19 June 2000 (19.06.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Manu Berrod Telephone No.: (41-22) 338.83.38
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OUR REF: 15349 TEN IJN

DATE: Gävle, 8 March, 2001

Please reply to our Gävle Office

Re: Patent appl. No. PCT/SE99/02266 in P C T

Göran Ågren

Dear Sirs,

With reference to the written opinion of January 23, 2001, enclosed you will find a new set of claims upon which the international preliminary examination report is to be based.

The claims have been amended as follows:

In the previous claim 1, page 16, line 18, the wording "said package being erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed and the flaps" has been added, which has support in the description, see for example page 8, lines 11-16 and the figures 9, 10 and 12. Furthermore, the wording "at a position adjacent to a folding line between the panel portion and the external wall portion associated thereto" has been added in line 27. The expression has support from the previous claim 3 and from the description, page 6, lines 5-14.

In accordance with the above stated the previous claim 3 has been deleted and the previous claims 4-19 have been renumbered to 3-18.



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MAY 23 2001 09:34

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PAGE 03

NOVELTY AND INVENTIVE STEP

In our opinion the document US 3 539 094 describes a device according to the state of art as it is defined in the preamble of claim 1 in the present application.

The device according to US 3 539 094 has a number of disadvantages. Different portions of the package have to be glued to each other to form the package and make certain that the package will stay in the erected state. The device has a construction for locking the package which requires that openings 20 are made in the blank. The opening 20 is intended to receive a locking tip 19 protruding from the internal wall portion 17 into the cavity of the second of the walls in the corner to lock the first wall, including the panel portion 16 and the wall portion 17, in place. Besides that this opening 20 must be made precisely to obtain a good fit between the locking tip 19 and the opening 20 in the erected state of the package, the construction results in a number of disadvantages. It is difficult or simply impossible to fold the blank to an erected package by means of a machine in a rational way, since at least the introducing of the locking tips 19 should require manual work. Furthermore, if the package is erected/dismounted many times the package function will become impaired since such a handling will very likely result in wearing or rupture of the locking tip 19 and/or the material close to the opening.

An important feature of the package of the current type is of course that the walls of the package are stable and do not have the disposition to move back to the state in which the package is not erected. In the cited device according to US 3 539 094 the wall including the panel portion 16 and the wall portion 17 is stabled through that the locking tip 19 bears against the panel portion 7. However, in this connection there is an important disadvantage since the construction itself limits the lever arm by which a force from the panel portion 7 may act on the wall including the wall portions 16 and 17. A first lever arm extending from the contact point, in which the panel portion 7 effects the locking tip 19 in a direction downwards toward the bottom, to the folding line between the panel portion 16 and the external wall portion 15, is always equal to the thickness of the wall, i.e. the breadth of the panel portion 16. However, in this connection such a large first lever arm as possible is desired for stabilizing the wall including the wall portions 15, 16 and 17.

Correspondingly, in the same contact point the locking tip 19 acts on the panel portion 7 in a direction upwards in the case that the wall including the wall portions 16 and 17 is loaded so it tends to move in an unlocking direction. A second lever arm available for this force is substantially equal to the breadth of the panel portion 7. However, in a package in which the panel portion 9 is free to move such a short second lever arm as possible is desired for stabilizing the wall including the panel portion 7 and the internal wall portion 8, but this is not noticed in any way in US 3 539 094 since the wall is stable through the fact that the panel 9 is glued to the bottom panel and there is no need of a short second lever arm. See for example column 1, lines 40-46 and 53-54.

The construction of the package according to the invention allows that the package may be produced completely by a machine in a rational way without any gluing of the package and makes it possible to give the package a design with a first lever arm longer than the breadth of the wall from which the locking tip protrudes. Furthermore, through the characteristic that "the locking tip protrudes into the cavity of the other of the walls in the corner and is arranged to lock the first wall in place by bearing against the inner side of the panel portion of the other wall at a position adjacent to the folding line between the panel portion and the external wall portion associated thereto" it is secured that a short second lever arm is obtained which will lead to a very high stability of the package without any gluing.

As regards the cited package according to US 2 447 243 this package is of a completely different type than the package according to the invention. The walls are formed by folding the blank outwards away from the middle of the package, and thus the cited device does not have the characteristic "said package being erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed and the flaps bear upon the upper side of the bottom portion in the erected state of the package". Thus, in opposite to the device according to the invention the portion 24 of the blank has to be attached to the underside of the bottom of the package by means of adhesive to secure that the package will stay in the erected state. See for example column 3, lines 47-49, in the document US 2 447 243.

There is no possibility that a man skilled in the art would use any learning from this document and combine it with the package according to US 3 539 094 for obtaining the package according to the invention. Firstly, the packages are of different

types, i.e. in US 3 539 094 the walls are formed by folding the assemblies of the blank inwards and in US 2 447 243 by folding corresponding assemblies of the blank outwards, and furthermore the packages use locking tips of completely different types.

The in-fold corner (locking tip) 28 in US 2 447 243 bears against the side wall 19, not against the panel portion 20, to make certain that the wall including portions 16, 17 and 20 does not collapse, and thus the force is transferred in a direction parallel to the bottom of the package instead of perpendicularly to the bottom which is the case for the package according to US 3 539 094 and the package according to the invention.

In addition, even if the contact point would be against the panel portion 20, in fact the position of the in-fold corner (locking tip) 28 adjacent to the folding line between the panel portion 22 and the external wall portion 19 results in a longer second lever arm because of the fact that the wall, including the panel portion 22 and the internal wall portion 18, is formed by folding outwards. (In an outwards-folding-construction instead it would be advantageous if the contact point between the in-fold corner (locking tip) 28 and the panel portion 22 was located adjacent to the folding line between the panel portion 22 and the internal wall portion 18 if the purpose would be to obtain such a small second lever arm as possible!).

Thus, either in the document US 2 447 243 or in the document US 3 539 094 the advantage of a short second lever arm is described and accordingly how to decrease this lever arm is not described in any of these documents, and in fact a combination of the documents US 3 539 094 and US 2 447 243 will not result in a package according to the invention.

In the light of the arguments above we are awaiting an international preliminary examination report in which the statement of the present invention will be positive regarding novelty and inventive step as regards the claims 1-6 and 10-18.

GÖRAN ÅGREN

by

BJERKÉNS PATENTBYRÅ KB

Jan Olsson

Encls.

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Claims

1. A device at a package which in its erected state comprises a bottom (2) and hollow walls (3-6) protruding upwards therefrom, which walls each has an internal (12-15) and an external (16-19) wall portion located at a mutual distance while forming a cavity therebetween, and panel portions (20-23), which form upper edges of the walls of the package and which connect the internal and external wall portions to each other, said package being made of a foldable blank having a bottom portion (7), wall assemblies (8-11) protruding therefrom and comprising the internal (12-15) and external (16-19) wall portions and the panel portions (20-23), and an arrangement for locking the package in its erected state, which arrangement comprises one or more locking tips (25, 26, 32, 33), said wall assemblies (8-11) of the blank having flaps (24, 27, 31, 34) at their ends turned away from the bottom portion (7), said package being erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed and the flaps bear upon the upper side of the bottom portion (7) in the erected state of the package and are located below the panel portions (20-23), characterized in that at a corner formed by two adjoining walls (3-6) extending in an angle toward each other, a locking tip (25, 26, 32, 33) is connected with the internal wall portion (12-15) of a first of the walls by means of a folding line, which locking tip protrudes into the cavity of the other of the walls in the corner and which is arranged to lock the first wall in place by bearing against the inner side of the panel portion (21, 23) of the other wall at a position adjacent to a folding line between the panel portion and the external wall portion (17, 19) associated thereto.
2. A device according to claim 1, characterized in that each of the flaps (24, 27, 31, 34) are arranged to bear against the inside of the external wall portion (16-19) associated thereto by its outer edge.

3. A device according to any previous claim, characterized in that the package has an even number of walls (3-6).

4. A device according to any previous claim, characterized in that at a package with four walls (3-6), two opposite (3, 5) of these walls have two locking tips (25, 26, 32, 33) connected with their internal wall portions (12, 14) and located in the cavities of adjoining walls (4, 6) for locking the walls having the locking tips in place by bearing against the inner side of the panel portions (21, 23) of the walls without such locking tips.

5. A device according to any of the claims 1-3, characterized in that the package forms a non-closed construction by having two walls only and a bottom.

6. A device according to any previous claim, characterized in that two locking tips (25, 26, 32, 33) received in a cavity of a wall (4, 6) and associated to two adjoining walls (3, 5) have their outer ends in contact with each other and the inner side of the external wall portion (17, 19) of said wall (4, 6), the cavity of which receives the locking tips.

7. A device at a package comprising a bottom (2), walls (3-6) protruding upwards from the bottom and a cover (43), said cover (43) being provided with a folding notch (44) for enabling folding of the cover to a double folded state, in which state the cover is located at one of the walls of the package while leaving mainly the whole room in the package free and while protruding upwards above the upper edge of the walls of the package, and said cover (43) has flaps (76) at two edges extending substantially perpendicularly in relation to the folding notch, above which flaps the folding notch (44) extends so that also the flaps are double folded in the double folded state of the cover and located above two opposite walls of the walls of the package, characterized in that the flaps (76) protrude into the interior of the package in the closed position of the cover and that the

flaps (76) extend along substantially the whole length of the edges of the cover (43), which edges extend substantially perpendicularly to the folding notch (44).

- 5 8. A device according to claim 7, characterized in that the cover (43) has a cut (45), the ends of which connect to the folding notch and the extension of which is different from the folding notch for providing the outline of the cover desired in its double folded state when double folding the cover.
- 10 9. A device according to claim 8, characterized in that the cut (45) is substantially semicircular.
- 15 10. A device according to any of claims 7-9, characterized in that the cover (43) forms a part of an attachment (46) placeable in the package.
- 20 11. A device according to claim 10, characterized in that the attachment (46) and the package (1) comprise locking means (51, 52; 54, 55) co-operating for locking the attachment in a first state, in which the cover is closed, and in another state, in which the cover is double folded.
- 25 12. A device according to any of the claims 10 and 11, characterized in that the attachment unit has a bottom portion (47) for placing against the bottom (2) of the package and a panel element (48) connecting the bottom portion and a cover portion of the attachment, which panel element extends along and close to one of the walls of the package when the attachment is placed
- 30 in the package.
- 35 13. A device according to claim 12, characterized in that either the panel element (48) or the package (1) has a recess (49, 55) and that a first locking tip (50, 54) designed in the adjoining wall of the package or in the panel element is introducable in the recess for locking purposes.

14. A device according to claim 11, characterized in that the looking means for looking the attachment (46) in its first state, in which the cover (43) is closed, comprise a second locking tip
5 (51) on the attachment or the package for engagement with a second recess (52) on the package or the attachment.

15. A device according to claim 13, characterized in that the attachment (46) has a third locking tip (54) arranged to engage
10 with recesses (49, 55) arranged in the panel element (48) and one of the walls of the package in the double folded state of the cover for holding the cover in its double folded state.

16. A device at a package comprising a bottom (2'), walls protruding upwards from the bottom and a cover (43'), characterized
15 in that the cover forms part of an attachment (46') placeable in the package, in that this attachment has a bottom portion (47') and means (56, 57) for locating this bottom portion at a distance above the bottom of the package so that a double bottom is created, in that the attachment unit (46') forms the cover
20 by means of two cover panels (61, 62) arranged at a mutual distance, which cover panels are pivotable with respect to each other as well as in relation to the rest of the attachment, and in that at least one of the cover panels (61, 62) has a locking tip
25 (65, 69, 75), which automatically moves into locking engagement with a recess (66, 76) in the package when pivoting the present cover panel towards the closed position and which moves out of the locking engagement when pivoting the present cover panel towards the open position.

30
17. A device according to claim 16, characterized in that the bottom portion (47') of the attachment is connected with the panels (61, 62) forming the cover through a panel element (63) arranged to extend parallel and close to one of the walls of the
35 package when the attachment unit is located in the package.

18. A device according to any of the claims 16 or 17, characterized in that the bottom portion (47') of the attachment has one or more tips (49) for locking/holding engagement with corresponding recesses (60) in the package.

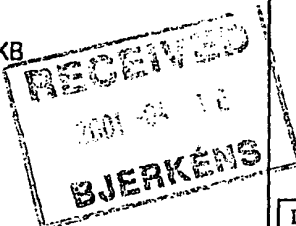
ENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

Bjerkéns Patentbyrå KB
Box 1274
S-801 37 GÄVLE



NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year) 04-04-2001

Applicant's or agent's file reference
15349 HB/hw

IMPORTANT NOTIFICATION

International application No.
PCT/SE99/02266

International filing date (day/month/year)
03-12-1999

Priority date (day/month/year)
03-12-1998

Applicant
Ågren, Göran

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/
Patent- och registreringsverket
Box 5055
S-102 42 STOCKHOLM
Facsimile No. 08-667 72 88

Telex
17978
PATOREG-S

Authorized officer

Telephone No. 08-782 25 00

Form PCT/IPEA/416 (July 1992)

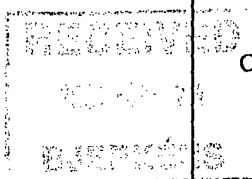
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COMMUNICATION IN CASES FOR WHICH
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Date of mailing
(day/month/year) 23-04-2001

Applicant's or agent's file reference
15349 HB/hw

REPLY DUE
See paragraph 1 below

International application No.
PCT/SE99/02266

International filing date
(day/month/year) 03-12-1999

Applicant
Ågren, Göran

1. ☐ REPLY DUE within _____ months/days from the above date of mailing

☐ NO REPLY DUE

2. COMMUNICATION:

4 corr. pages of the IPE report.

Name and mailing address of the IPEA/SE
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Box 5055
S-102 42 STOCKHOLM
Facsimile No. 08-666 02 86

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17978
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Authorized officer

Telephone No. 08-782 25 00

Handwritten signature of the authorized officer.

Form PCT/IPEA/424 (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/SE99/02266

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-15, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under article 19
 pages _____, filed with the demand
 pages 1-5, filed with the letter of 09.03.2001
- ☒ the drawings:
 pages 8, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language english which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheet/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

Form PCT/IPEA/409 (Box I) (January 1998)

CORRECTED

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/SE99/02266

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-6, 10-18</u>	YES
	Claims	<u>7-9</u>	NO
Inventive step (IS)	Claims	<u>1-6, 10-18</u>	YES
	Claims	<u>7-9</u>	NO
Industrial applicability (IA)	Claims	<u>1-18</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention relates to a package comprises a bottom, double and hollow walls protruding upwards therefrom and a cover. The package is formed by a foldable blank and comprises locking tips for locking the package in erected state.

D1: US 3 539 094 A
 D2: US 2 447 243 A
 D3: US 1 903 461 A
 D4: US 2 647 621 A

Document D1 discloses a hollow wall tray with corner lock. The tray comprises of a bottom (1) and hollow walls protruding upwards therefrom. Each wall has an internal (8, 17) and external (6, 15) wall partition located at a mutual distance while forming a cavity there between. Panel portions (7, 16) form upper edges of the walls of the package and connect the internal and external wall portion to each other. The package is erected by pivoting the wall assemblies of the blank inwards toward the middle of the package so that the walls are formed. At a corner formed by two adjoining walls in an angle toward each other is a locking tip (19) connected with the internal wall portion (17) of a first of the walls. The locking tip protrudes into the cavity of the second of the walls in the corner (fig. 6). The locking tip is arranged to lock the first wall in place by bearing against the inner side of the panel portion (7) of the second wall. The internal wall portions have flaps (9, 18), that bear upon the upper side of the bottom portion (1) in the erected state of the package and are located below the panel portions (7, 16). See fig. 1, 2, 6.

.../...

CORRECTED

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/SE99/02266

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

The invention claimed in claim 1 differs from D1 in that the locking tip bears against the inner side of the panel portion (21, 23) of the second wall at a position adjacent to a folding line between the panel portion and the external wall portion (17, 19) associated thereto. To avoid that the package is effected in an unlocking direction it is advantageous that the contact point between the locking tip (25, 26) and the panel portion (21, 23) is at a position adjacent to the folding line between the panel portion and the external wall portion associated thereto. Then the lever arm between the contact point and the external wall portion will be as short as possible.

Document D2 describes a double-walled tray with internal (16) and external (17) wall portions. The wall assemblies are formed by folding the blank outwards away from the middle of the package. Locking tips (28) are connected with the internal wall portions (16, 18) and protrude into the adjoining cavity. The locking tips have their outer ends in contact with each other and the inner side of the external wall portion. The locking tips also bear against the inner side of the panel portion (22) at a position adjacent to a folding line between the panel portion (22) and the external wall portion (19) associated thereto. See fig. 3, 8, 9, 12. However in this case the lever arm between the contact point (between the locking tip 28 and the panel portion 22) and the internal wall portion (16) is long, which is a disadvantage. To avoid that the package is effected in an unlocking direction the lever arm must be short.

Neither D1 nor D2 describe the advantage of a short lever arm and not even a combination of the documents D1 and D2 will result in a package according to the invention. Consequently, the invention claimed in claims 1-6 is novel, is considered to involve an inventive step and to be industrially applicable.

.../...

CONFIDENTIAL

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/SE99/02266

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

Document D3 discloses a package comprising a bottom, walls protruding upwards from the bottom and a cover. The cover is provided with a folding notch (21, 22). The cover is folded to a double folded state. Then the cover is located at one of the walls of the package while mainly the whole room in the package is left free. The cover has flaps at two edges extending substantially perpendicularly in relation to the folding notch. The flaps protrude into the interior of the package in the closed position of the cover. The flaps extend along the whole length of the edges of the cover (see fig 1, 2). Also document D4 describes such a package see fig. 7-10. Thus, the invention according to claims 7-9 does not differ from what is disclosed in D3 and is therefor not novel.

The invention claimed in claims 10-15 describes a cover that forms a part of an attachment placeable in the package. Neither document D3 nor D4 suggest that solution. Therefore the invention claimed in claims 10 - 15 is novel, is considered to involve an inventive step and to be industrially applicable.

The invention claimed in claims 16-18 describes a package comprising a bottom, walls protruding upwards from the bottom and a cover. The cover forms a part of an attachment placeable in the package. None of the cited documents in the search report disclose such a cover. Consequently, the invention claimed in claims 10-18 is novel, is considered to involve an inventive step and to be industrially applicable.

CORRECTED

RECORD COPY

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No. PCT/ SE 99 / 02266

International Filing Date 1999-12-03

The Swedish Patent Office
PCT International Application
Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) 15349 HB/hw

Box No. I TITLE OF INVENTION	
"Device in packaging"	
Box No. II APPLICANT	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
ÅGREN, Göran Persborg 8 SE-805 95 GÄVLE, Sweden	
<input checked="" type="checkbox"/> This person is also inventor.	
Telephone No.	
Facsimile No.	
Teleprinter No.	
State (that is, country) of nationality: Sweden	State (that is, country) of residence: Sweden
This person is applicant for the purposes of: <input checked="" type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
This person is: <input type="checkbox"/> applicant only <input type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
State (that is, country) of nationality:	State (that is, country) of residence:
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
BJERKÉNS PATENTBYRÅ KB, represented by BJERKÉN, Håkan; OLSSON, Jan; BERGLUND, Stefan or ISRAELSSON, Stefan Box 1274 SE-801 37 GÄVLE Sweden	
Telephone No.	
+46 26 10 05 50	
Facsimile No.	
+46 26 14 30 45	
Teleprinter No.	
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes: at least one must be marked):

Regional Patent

- ☒ **AP ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|---|---|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MX Mexico |
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| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> CZ Czech Republic and utility model | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DE Germany and utility model | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DK Denmark and utility model | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> FI Finland and utility model | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia and utility model |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | |
| <input checked="" type="checkbox"/> KR Republic of Korea | |
| <input checked="" type="checkbox"/> KZ Kazakhstan | |
| <input checked="" type="checkbox"/> LC Saint Lucia | |
| <input checked="" type="checkbox"/> LK Sri Lanka | |

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

- ☒ **CR** Costa Rica (from August 3, 1999)
- ☒ **DM** Dominica (from August 7, 1999)

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

03-12-1999

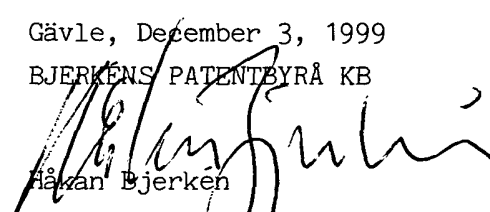
Box No. VI PRIORITY CLAIM					<input type="checkbox"/> Further priority claims indicated in the Supplemental Box.
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:			
		national application: country	regional application: regional Office	international application: receiving Office	
item (1) December 3, 1998	9804213-8	Sweden			
item (2)					
item (3)					

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s):

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY		
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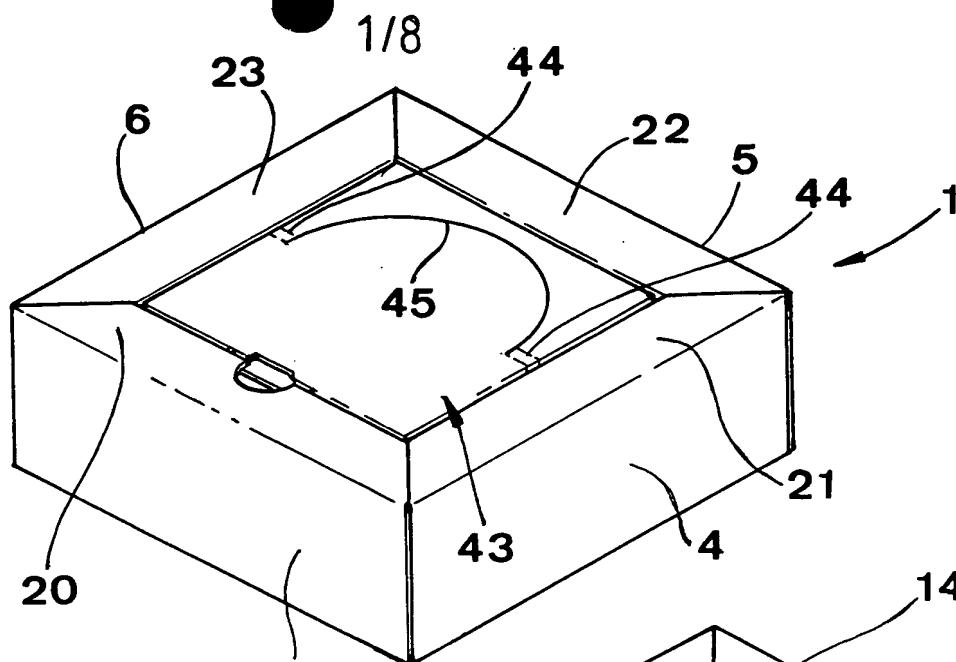


Fig 1

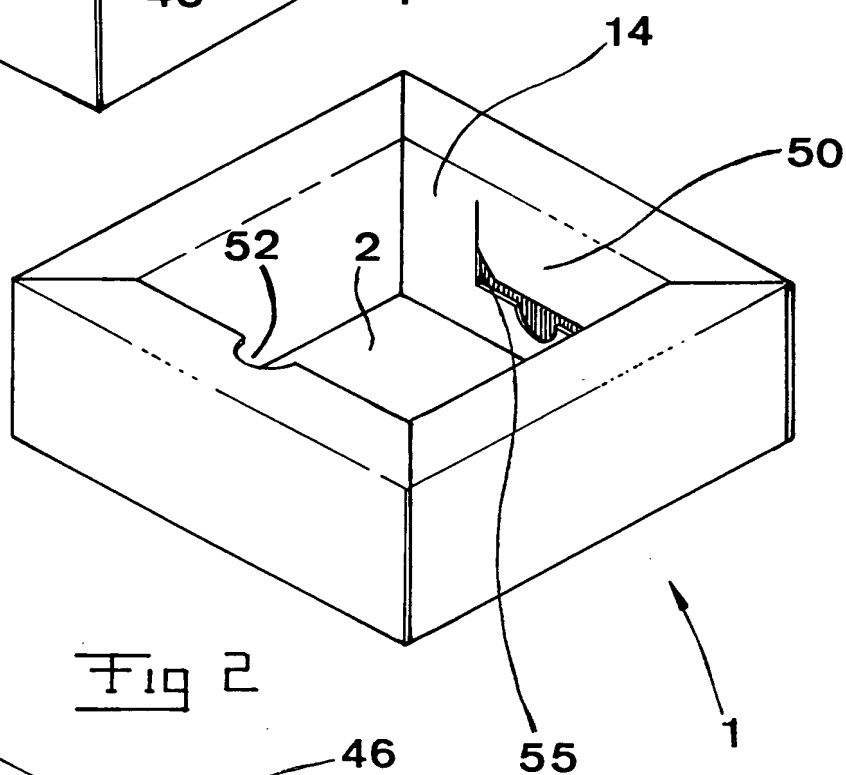


Fig 2

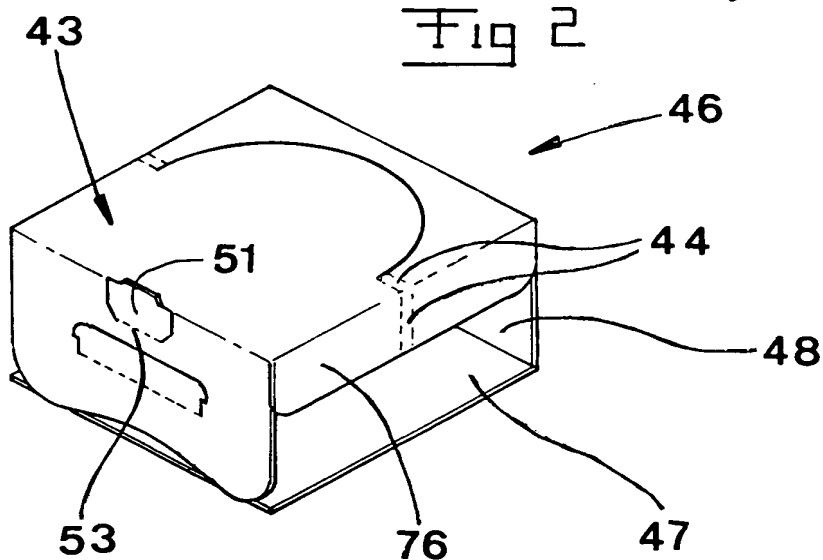


Fig 3

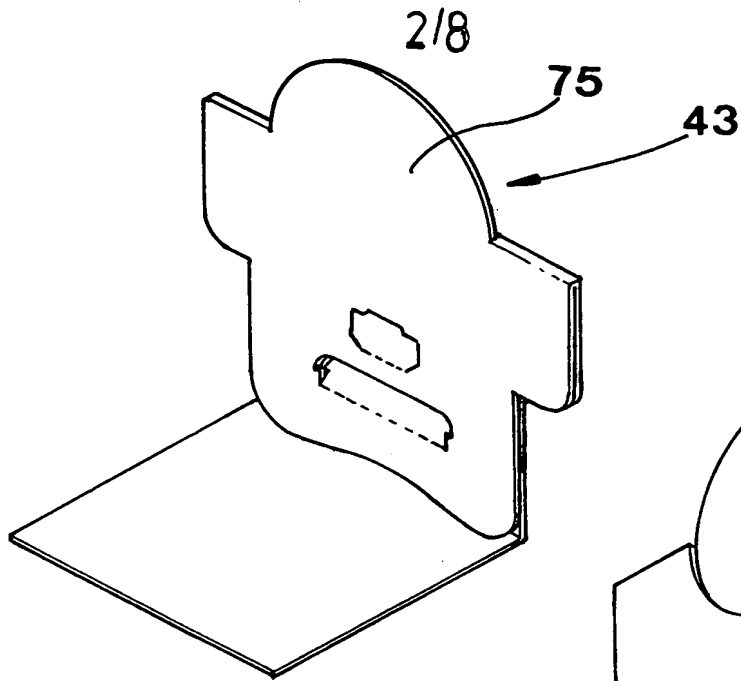


Fig 5

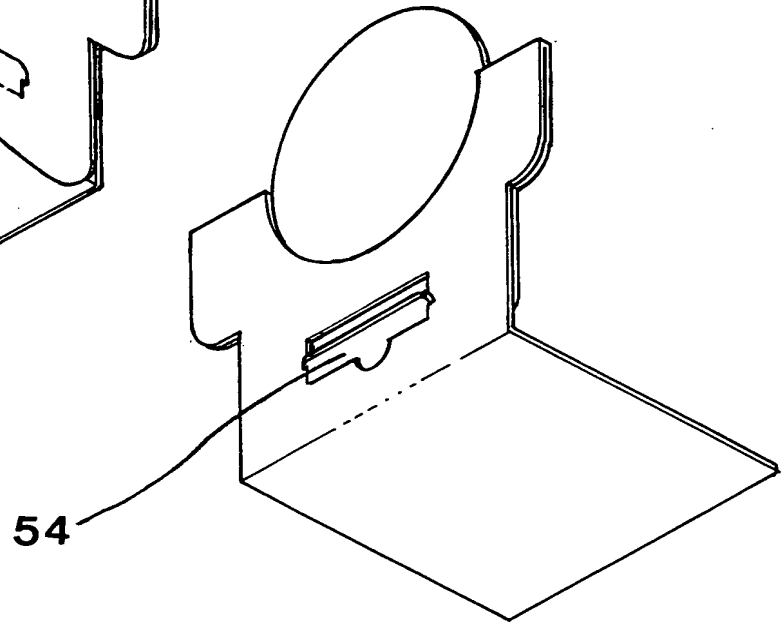


Fig 6

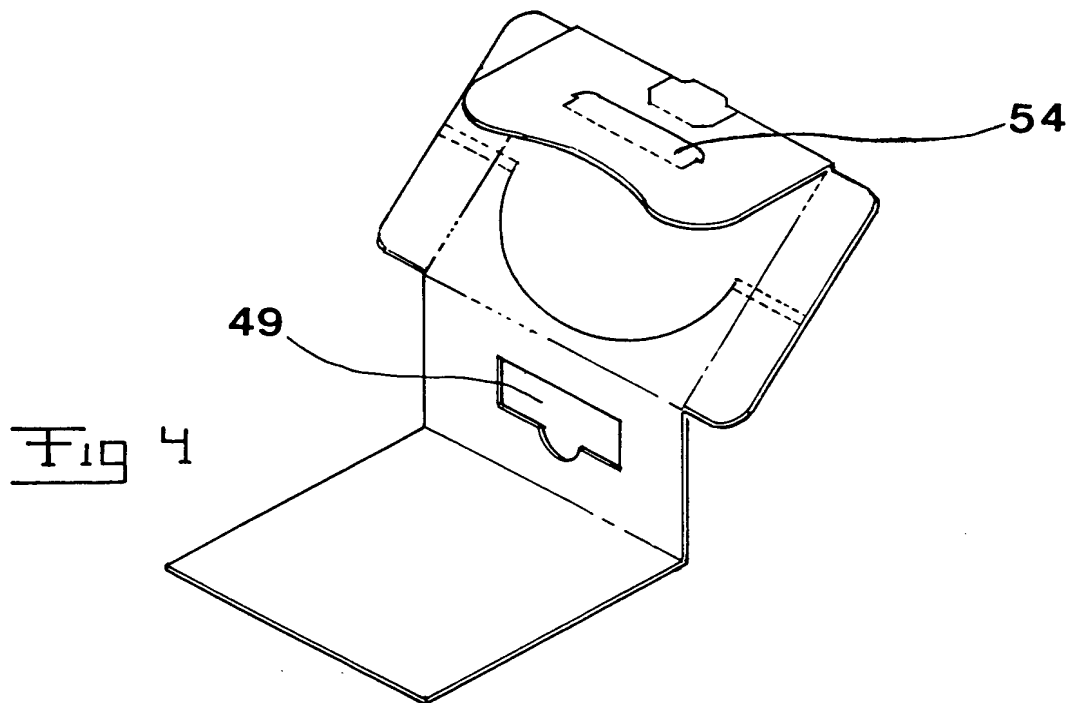
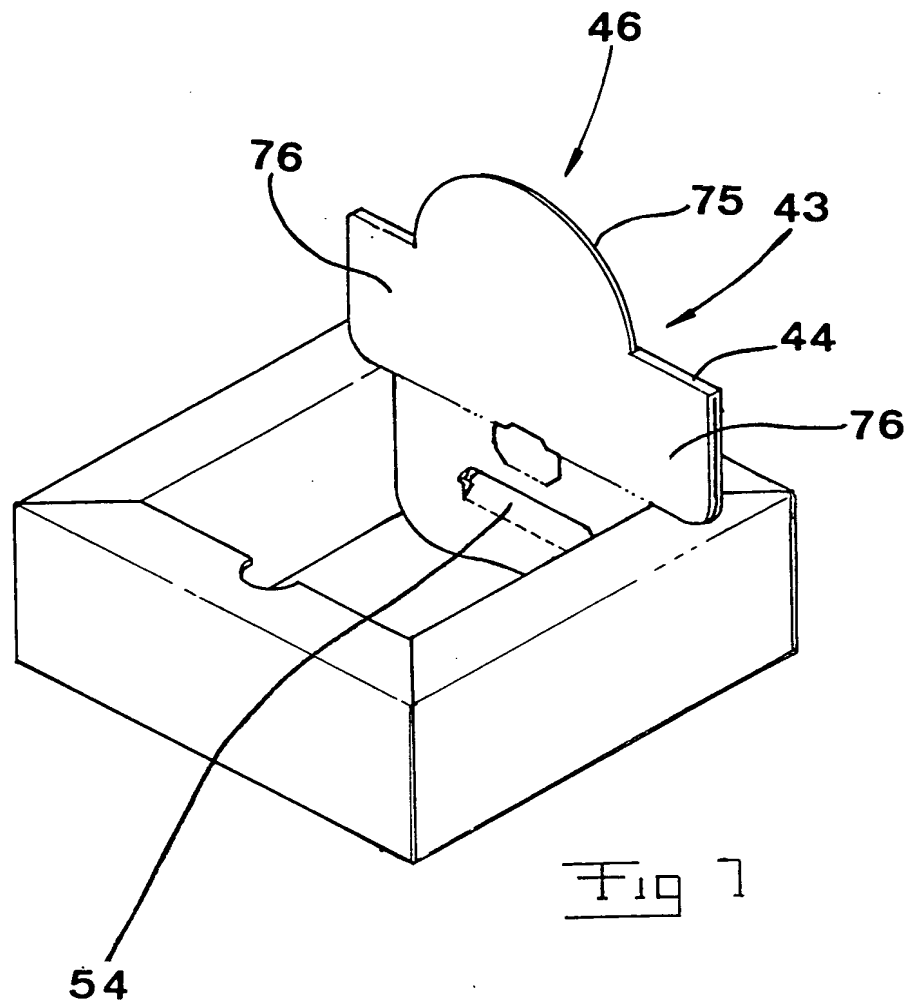


Fig 4

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4/8

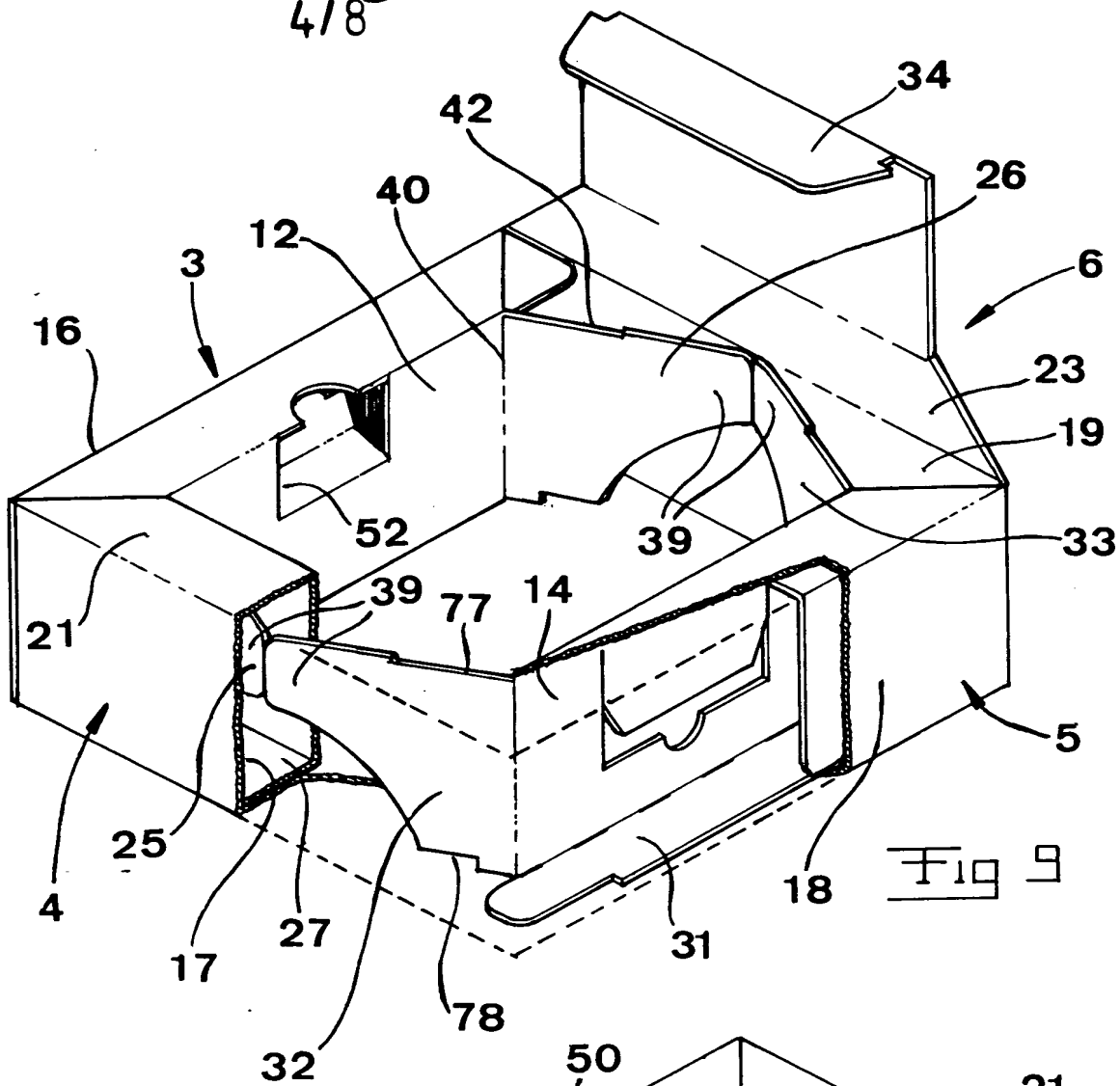


Fig 9

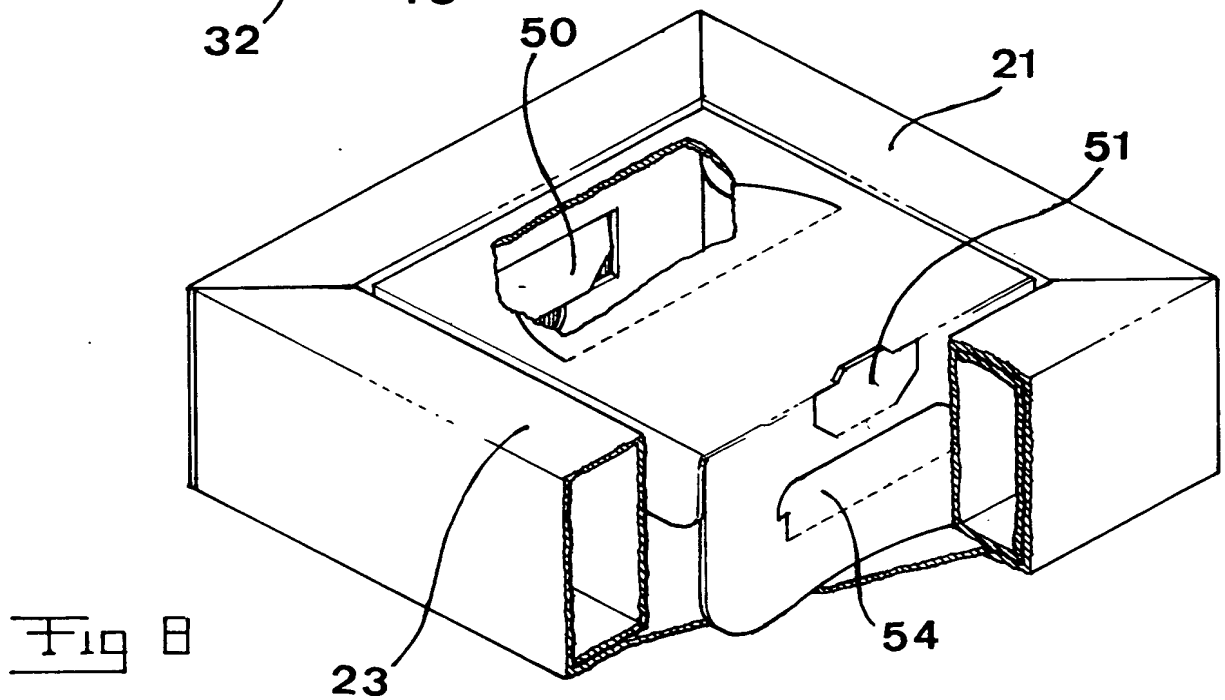
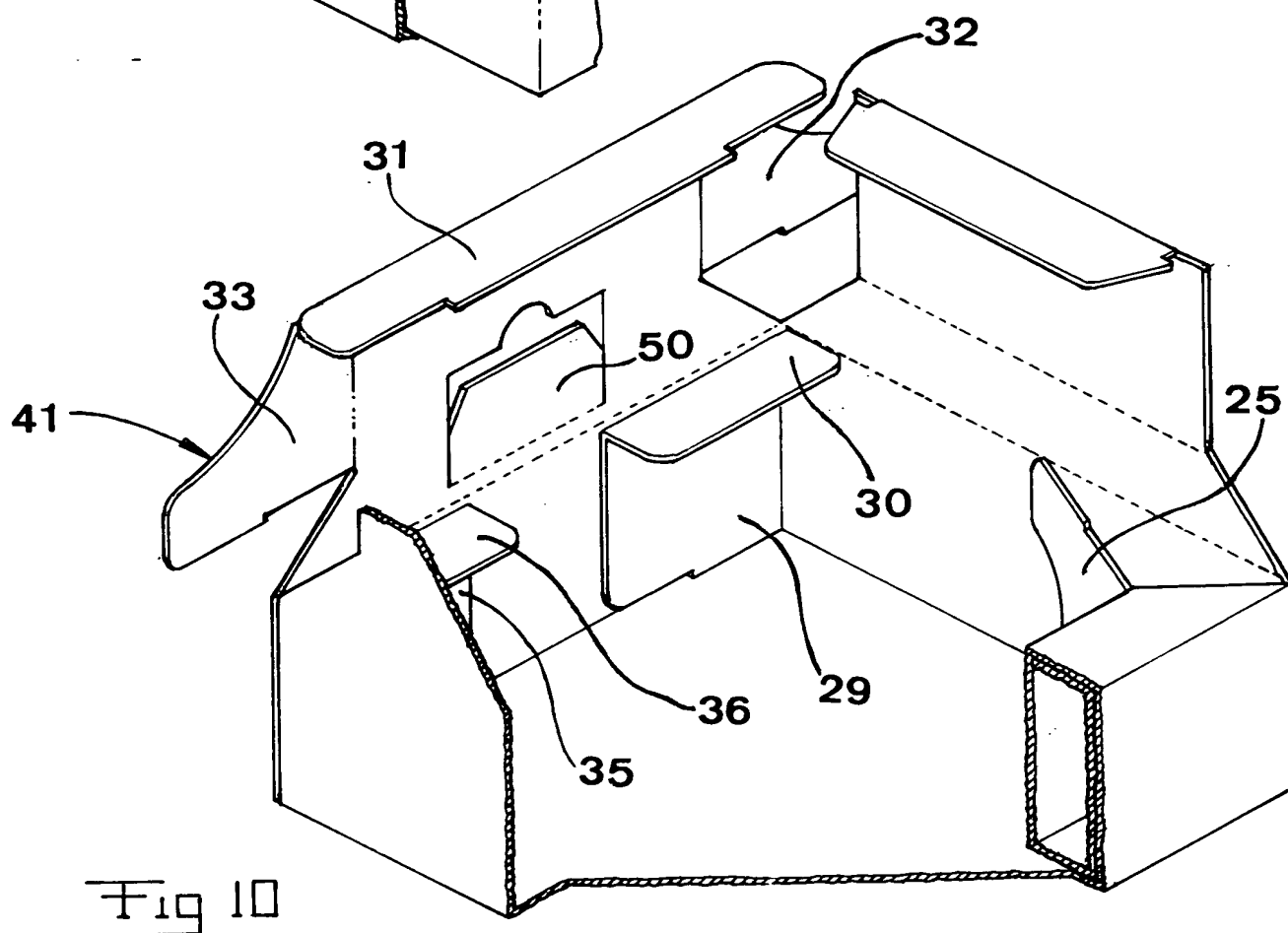
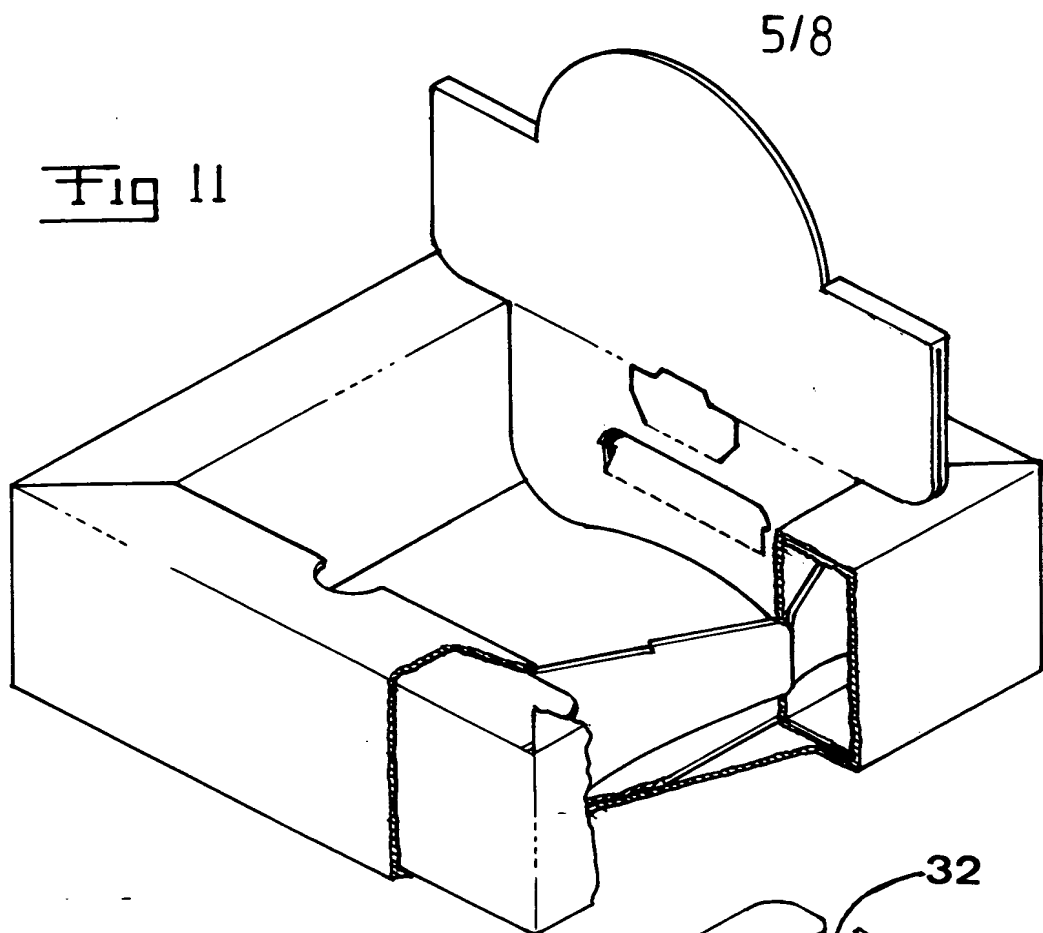
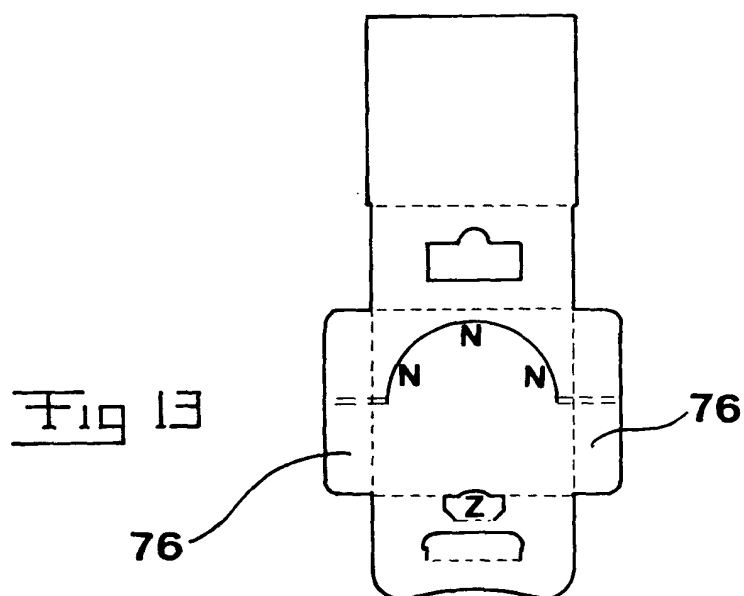
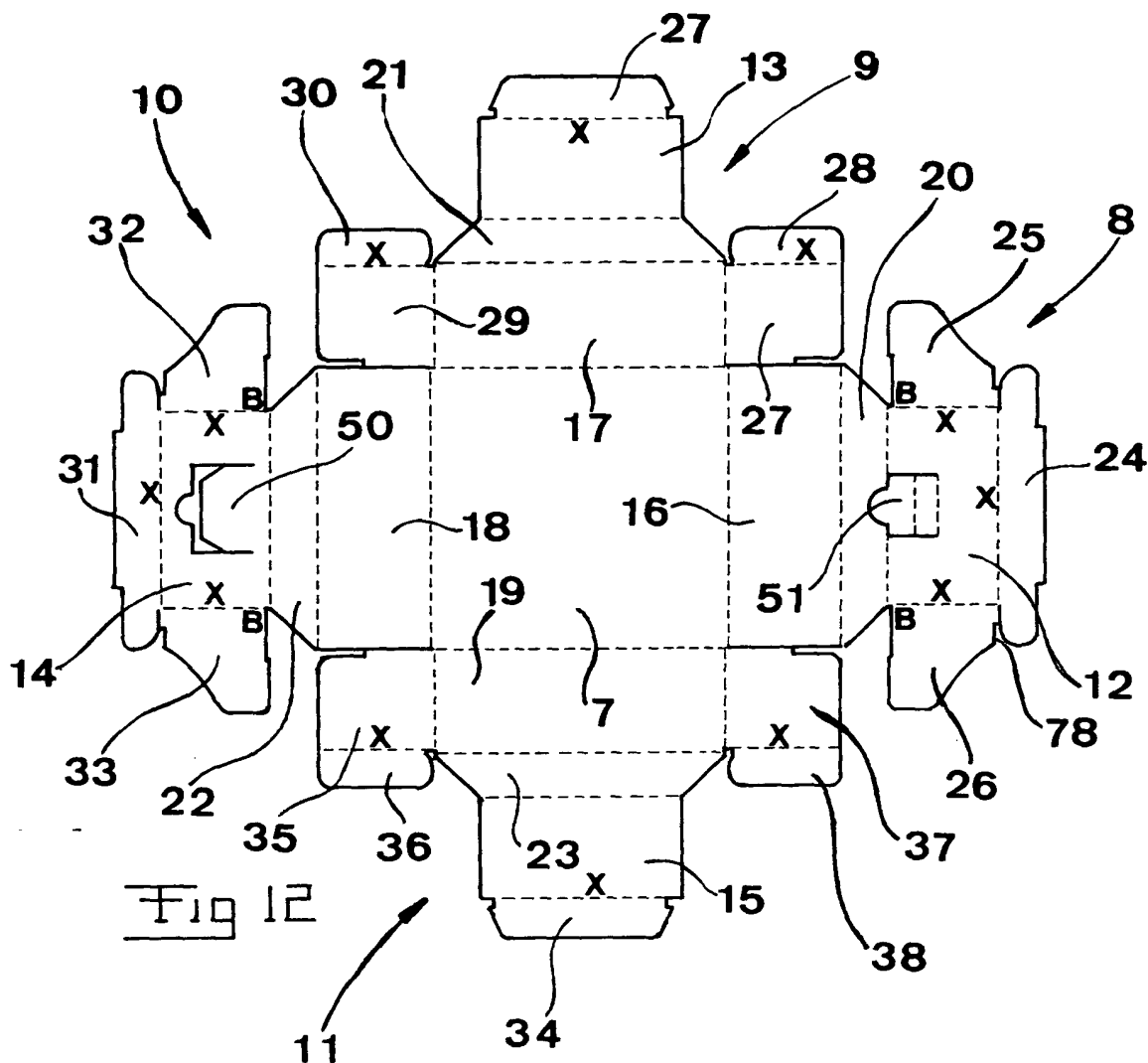
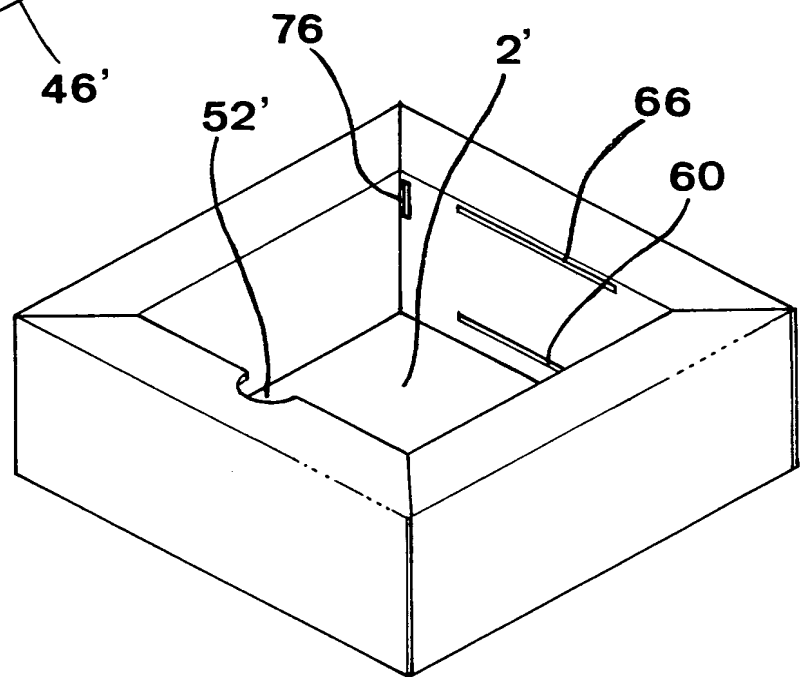
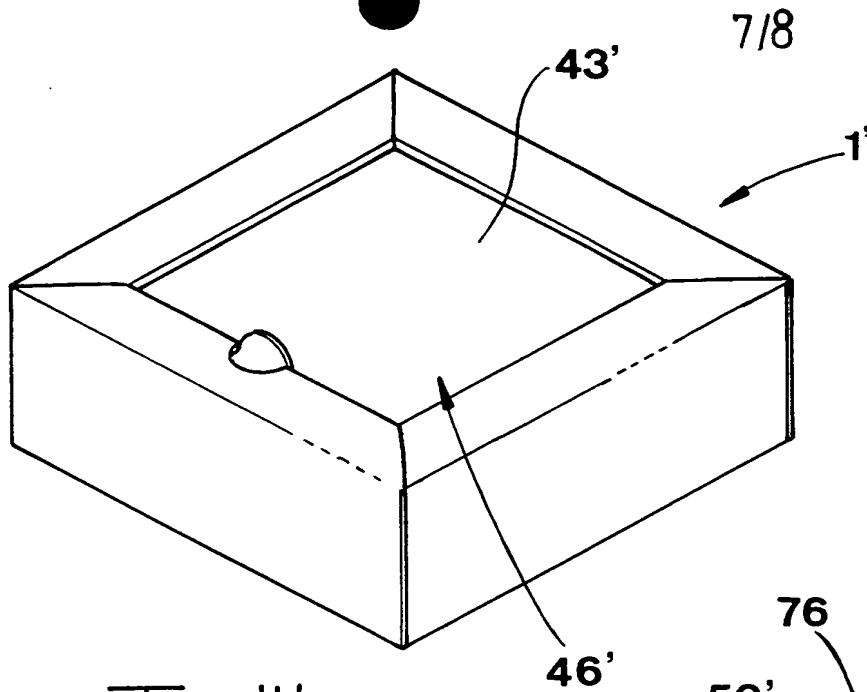


Fig 8



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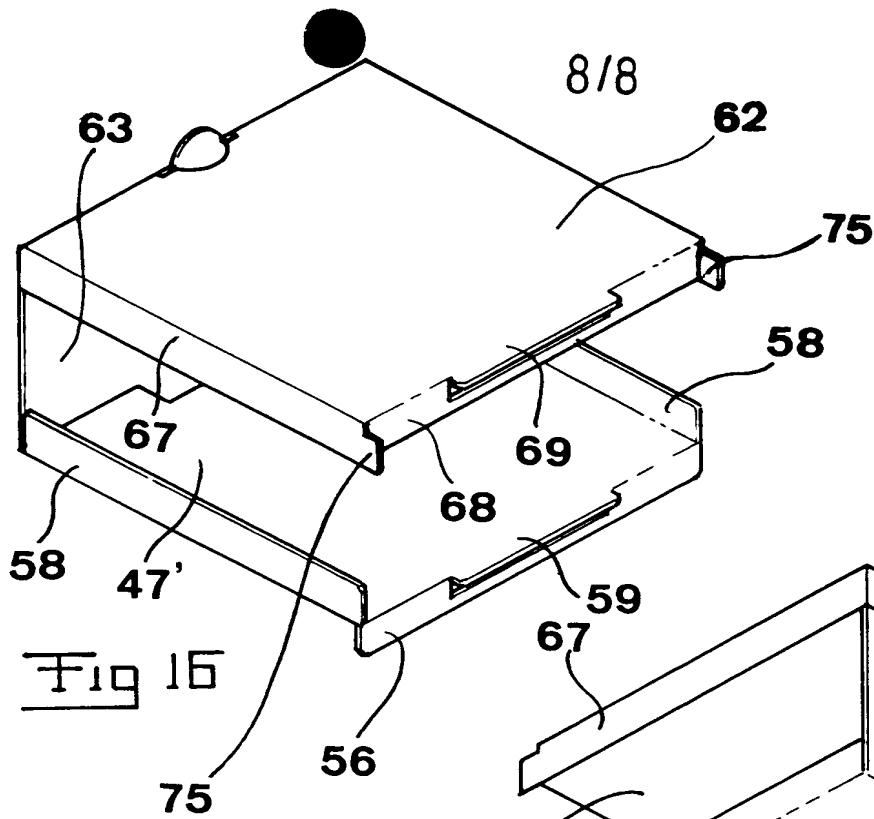


Fig 16

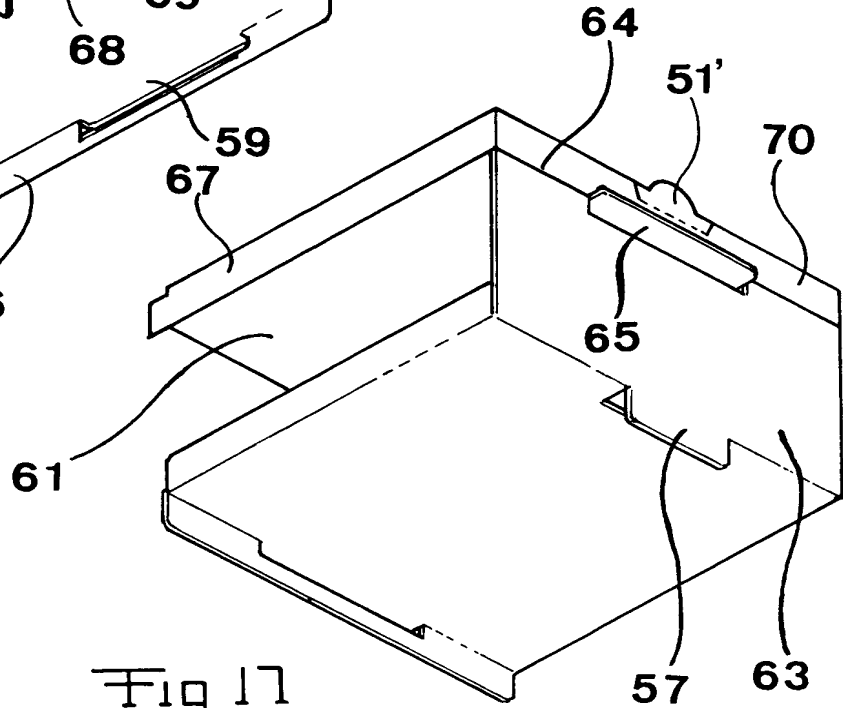


Fig 17

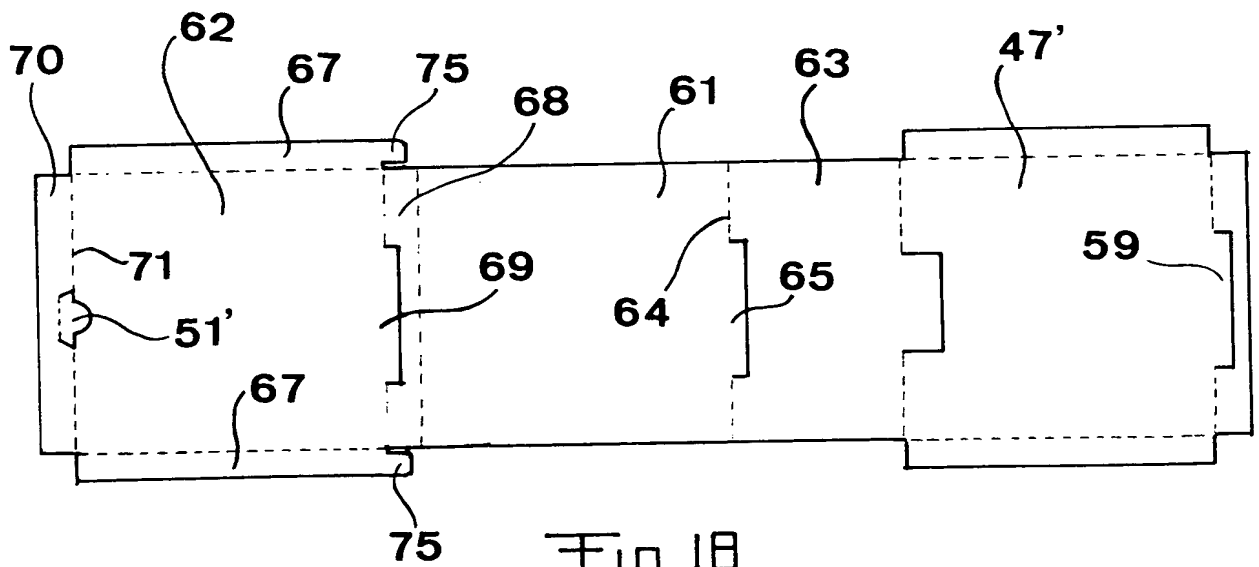


Fig 18

HB/ae/ab

Sökande: Göran Ågren

5

Anordning vid förpackning

10 UPPFINNINGENS OMRÅDE OCH TIDIGARE TEKNIK

Denna uppfinning avser anordningar vid förpackningar enligt ingresserna till de efterföljande patentkraven 1, 8, och 17.

- 15 Vid kända förpackningar föreligger olägenheter som man hittills icke lyckats avhjälpa. Vid exempelvis förpackningar av det slag som relateras i ingressen till efterföljande krav 1 är det önskvärt att säkerställa att förpackningen erhåller god stabilitet. För detta ändamål är det känt att utforma det vikbara ämnet med låsande
20 flikar, klaffar eller dylikt men någon fullgod lösning har ännu icke presterats. Vidare är det känt att försöka avhjälpa stabilitetsproblem med hjälp av limförband, tejplingar etc. Nackdelen med sådana lösningar är emellertid att det blir svårt eller omöjligt att fälla samman förpackningen. Vidare kompliceras arbetet med att
25 bringa förpackningen till rest tillstånd.

Som exempel på känd teknik hänvisas till US 2 447 243.

- 30 Den i ingressen till efterföljande krav 8 definierade anordningen är känd genom GB 476 873. Ehuru den där illustrerade anordningen tillgodoser problemet för återförsäljare att på ett bra sätt exponera förpackade produkter för potentiella avnämare föreligger den nackdelen att locket har en mycket instabil utformning. Det vore önskvärt att komma fram till en mer stabil konstruktion
35 utan att för den skull produktexponeringsmöjligheterna påverkas negativt.

I anslutning till den i ingressen till efterföljande krav 18 definierade förpackningsanordningen, som motsvaras av vad som framgår av US 5 223 121 konstateras att den kända anordningen i vissa användningssituationer är olämplig därför att den baserar sig på en utformning där locket i ett stycke är förenat med förpackningen i övrigt. Vidare är vid den kända anordningen organen för låsning av locket i stängt läge otillfredsställande utformade.

10 SAMMANFATTNING AV UPPFINNINGEN

Uppfinningens syfte

Ett primärt syfte med uppfinningen är att vidareutveckla den i enlighet med ingressen till efterföljande krav 1 kända tekniken så att med i sammanhanget väl acceptabla åtgärder en väsentligt förbättrad låsning av förpackningen i dess resta tillstånd kan uppnås.

Vid en sekundär aspekt av uppfinningen åsyftas att förbättra den enligt ingressen till kravet 8 kända tekniken så att förpackningens lock erhåller stabilitet

Enligt en tredje aspekt av uppfinningen syftar den till att vid en anordning enligt ingressen till kravet 18 skapa förutsättningar för en bekväm och säker funktion vad gäller låsning och frigöring av locket.

LÖSNINGARNA ENLIGT UPPFINNINGEN

I enlighet med den primära aspekten av uppfinningen uppfylles det uppställda syftet genom vad som definieras i kravets 1 kännetecken. De definierade klaffarna och låsflikarna kommer att effektivt låsa förpackningen i rest tillstånd utan att det blir nödvändigt att tillgripa åtgärder som limning, häftning etc.

Vid den andra aspekten enligt uppfinningen uppfylles det uppställda syftet genom vad som framgår av kännetecknet till kravet 8. Därigenom erhålles en mycket stabil lockkonstruktion, som icke inkräktar på lockkonstruktionens manövrerbarhet för expone-
5 ringsändamål.

Den tredje aspekten av uppfinningen får enligt kännetecknet i efterföljande krav 18 sitt syfte tillgodosett genom tillgripande av de definierade låsflikarna, som automatiskt träder i låsande re-
10 spektive frigörande funktion när lockdelen ifråga svänges i och för stängande respektive öppnande.

KORT BESKRIVNING AV RITNINGARNA

15 Under hänvisning till bifogade ritningar följer nedan en närmare beskrivning av såsom exempel anförda utföranden av uppfinningen.

På ritningarna är:

20

Fig 1 en perspektivisk vy av den uppfinningsenliga förpackningen inbegripande en lockbildande tillsats,

Fig 2 en vy liknande Fig 1 utan tillsatsen,

25

Fig 3 en vy liknande den i Fig 1 men visande bara själva tillsatsen,

Fig 4 en utvecklad vy av tillsatsen enligt Fig 3,

30

Fig 5 och Fig 6 perspektiviska vyer av tillsatsen enligt Fig 3 och 4 i det läge då tillsatsens lock är dubbelvikt,

Fig 7 en vy liknande Fig 1 men illustrerande tillsatsen i dess läge enligt Fig 5,

35

Fig 8 en delvis skuren vy av förpackningen med dess tillsats,

- Fig 9 en vy illustrerande själva behållaren uppskuren och delvis öppnad,
- 5 Fig 10 en vy liknande den i Fig 9 men illustrerande förpackningen i ännu mer nedfällt skick,
- Fig 11 en förstorad vy liknande den i Fig 7 men dessutom delvis skuren,
- 10 Fig 12 en planvy illustrerande ett för bildande av förpackningen avsett vikbart ämne i plant skick,
- Fig 13 en liknande vy av själva tillsatsen,
- 15 Fig 14 en vy illustrerande en något modifierad förpackning med en lockbildande tillsats,
- Fig 15 en vy av själva förpackningen enligt Fig 14 med tillsatsen avlägsnad,
- 20 Fig 16 och Fig 17 perspektiviska vyer från motsatta håll illustrerande själva tillsatsen, och
- 25 Fig 18 en vy illustrerande ett vikbart ämne för bildande av tillsatsen enligt Fig 16 och 17 i plant utbrett tillstånd.

DETALJERAD BESKRIVNING AV FÖREDRAGNA UTFÖRANDEN

- 30 I Fig 1 och 2 illustreras en generellt med 1 betecknad förpackning innefattande en botten 2 och fyra från denna uppskjutande, ihåliga väggar 3-6. Förpackningen är bildad av ett i Fig 12 i plant utbrett tillstånd visat vikbart ämne uppvisande ett bottenparti 7, väggaggregat 8-11 med inre 12-15 och yttre 16-19
- 35 väggpartier för bildande av de ihåliga väggarna 3-6 och panelpartier 20-23, som bildar övre kanter hos förpackningens väggar och förbinder de inre och yttre väggpartierna med varandra.

Förpackningen är dessutom försedd med en inrättning för låsning av förpackningen i dess resta tillstånd. Denna inrättning innefattar bl a låsflikar betecknade med 25, 26, 32, 33.

5

Närmare bestämt innefattar låsinrättningen i två motstående första väggaggregat 8, 10 ingående låsflikar 25;32 respektive 26;33 , vilka i förpackningens resta tillstånd (se särskilt Fig 9) är belägna inuti en respektive av ett andra väggaggregat 9, 11 bildad vägg 4 respektive 6 och anordnade att låsa väggarna 3 och 5 på plats genom att taga stöd mot insidan av panelpartierna 21, 23 på deras insida. Genom att således låsflikarna 25, 26, 32, 33 kommer att hållas nere med bistånd av panelpartierna 21 och 23 kommer de inre väggpartierna 12, 14, vilka är förbundna med låsflikarna via respektive vikningslinjer, att hindras från att svänga i riktning inåt i behållaren i lösgörande riktning. Låsflikarna utformas med en lämplig längd så att erforderligt hävarmsförhållande uppnås. Av Fig 9 framgår att låsflikarna på sina övre kanter kan uppvisa urskärningar 77, vilka har till ändamål att säkerställa att det är låsflikarnas ytterändar som kontakter undersidan av panelpartierna 21, 23 så att stor hävarm erhålles. Såsom också klart framgår av Fig 9 och 10 är anordningen sådan att låsflikarnas ytterändar kommer att vara belägna relativt nära vikningslinjen mellan de i väggarna 4, 6 ingående yttre väggpartierna 17 respektive 19 och panelpartierna 21 respektive 23. Denna lokalisering av låsflikarnas kraftangreppspunkter innebär att väsentligen de yttre väggpartierna 17 och 19 kommer att fungera kraftöverförande utan att något så stort moment appliceras på panelpartierna 21 och 23 att risk föreligger att förpackningen oavsiktligt påverkas i upplåsande riktning.

Av Fig 9 framgår hurusom låsflikarna 25 och 26 via vikningslinjer 40 är förbundna med det inre väggpartiet 12 hos väggen 3 medan låsflikarna 32,33 är förbundna med det inre väggpartiet 14 hos väggen 5. Dessa väggpartier 12,14 är upptill hållna i ett inbördes väsentligen parallellt men distanserat förhållande till yttre väggpartier 16,18 ingående i väggarna 3 respektive 5 med hjälp

av panelpartierna 20, 22. Klaffar 24 respektive 31 (se både Fig 9 och 12) fungerar distanshållande mellan de respektive inre och yttre väggpartierna 12;16 respektive 14;18 i förpackningens undre område. Klaffarna 24 och 31 är belägna ovanför botten 7 och kan stödja mot denna och anligger med sina yttre kanter mot insidan av de yttre väggpartierna 16, 18.

Klaffar 27 och 34 som ansluter till de inre väggpartierna 13, 15, ingående i väggaggregaten 9, 11 fungerar som låsorgan för dessa, d v s för låsande av väggarnas 4 respektive 6 inre och yttre väggpartier i ett väsentligen parallellt förhållande på inbördes avstånd. Klaffarna 24 och 31 kommer att befinna sig i förpackningens bottenområde under de övre panelpartierna 20 respektive 22 på samma sätt som klaffarna 27 respektive 34 kommer att befinna sig i bottenområdet av förpackningen under de tillhörande panelpartierna 21 respektive 23 . Således etableras den ihåliga karaktären hos väggarna 3-6 .

I förpackningens hörnområden föreligger på konventionellt sätt sneda fasningar av exempelvis panelpartierna 21-24 för att de skall passa ihop inbördes och stöta kant mot kant mot varandra.

Av speciellt Fig 10 framgår hurusom klaffar 27-38 ingår i förpackningen i dess resta tillstånd; detta är närmare bestämt illustrerat i Fig 10 med hjälp av klaffarna 29/30 och 35/36. Dessa klaffar fungerar närmare bestämt för resning av väggaggregaten 9, 11 respektive 8, 10 och är belägna i förpackningens hörnområden.

Låsflikarna 25,26 respektive 32,33 är således förbundna med de inre väggpartierna 12 respektive 14 hos väggarna 3,5 och låser dessa genom att befinna sig under panelpartierna 21, 23, som låses medelst de inre väggpartierna 13, 15 och klaffarna 27, 34.

Det föredrages att låsflikarna 25, 26, 32, 33 sträcker sig snett från sina infästningspunkter relativt de inre väggarna 12,14 ut mot flikarnas ändar 39. Denna snedhet innebär att stöd-

fliksändarna 39 kommer att vara belägna nära vikningslinjen mellan panelpartierna 21, 23 och de yttre väggpartierna 17, 19. Det framgår av exempelvis Fig 10 att stödflikarna är försedda med urskärningar 41. Dessa har till uppgift att underlätta
5 förpackningens hopvikning.

Av exempelvis Fig 9 och 11 framgår att låsflikarnas ändar 39 kan anligga parvis mot varandra. Det betonas att detta icke är något krav. Å andra sidan kan sådan anliggning medföra den fördelen
10 att låsflikarna säkrare hålls på adekvat plats med sina ändar nära eller i kontakt med de yttre väggpartierna hos väggarna 4 och 6, d v s att låsflikarna icke oavsiktligt blir belägna närmare eller in- till dessa väggars 4, 6 inre väggpartier.

15 Av exempelvis Fig 9 och 12 framgår att låsflikarna nedtill är försedda med urskärningar 78. Dessa är till för att tillåta väggarnas 4, 6 klaffar 27 och 34 att föras in under låsflikarna, där klaffarna 27, 34 effektivt kommer att hållas på plats.

20 Vid resning av förpackningen med utgångspunkt från det plana läget enligt Fig 12 svängs först de låsflikarna uppvisande väggaggregaten 8, 10 uppåt och inåt mot förpackningens mitt så att väggarna 3 och 5 bildas. Därefter svängs väggaggregaten 9 och
25 11 uppåt och inåt i och för bildande av väggarna 4, 6. I och med att klaffarna 27, 34 svängs in under låsflikarna till slutläget som visas för klaffen 27 i Fig 9 kommer förpackningen i dess helhet att bli väl låst i sitt resta tillstånd.

I Fig 1 illustreras generellt med 43 ett lock. Detta lock är försett
30 med en vikningsanvisning 44 för att möjliggöra vikning av locket till ett dubbelvikt tillstånd illustrerat i Fig 5, 6 och 7, i vilket locket är beläget vid en av väggarna hos förpackningen under frilämnande av i huvudsak hela utrymmet i förpackningen och under uppskjutande över den övre kanten av förpackningens väggar.

35 Locket 43 (Fig 1 och 7) uppvisar i exemplet ett snitt 45, vars ändar ansluter till vikningsanvisningen 44 och vilket sträckning skiljer sig från vikanvisningen 44 för att vid dubbelvikning av

locket åstadkomma önskad kontur hos locket i dess dubbelvikta tillstånd.

5 Det avhandlade snittet 44 är i exemplet väsentligen halvcirkulärt, vilket innebär att när locket är dubbelvikt kommer det att överst ha ett halvcirkulärt parti 75.

10 I Fig 3 illustreras locket 43. Detta uppvisar utmed två väsentligen vinkelrätt mot vikningslinjen 44 sig sträckande kanter klaffar 76 (se även det i Fig 13 utbredda ämnet). Dessa klaffar 76 skjuter i lockets stängda läge in i förpackningen. Vikningslinjen 44 sträcker sig över klaffarna 76 så att i lockets dubbelvikta tillstånd är även klaffarna 76 dubbelvikta och närmare bestämt så att de ligger i väsentligen parallellitet med planet för det dubbelvikta 15 locket 43. I lockets stängda läge kommer klaffarna 76 att stabilisera locket eftersom de sträcker sig vinkelrätt mot lockets huvudplan.

20 I Fig 12 och 13 avses beteckningen x antyda vikningslinjer etablerade med tillhjälp av flera i linje med varandra förlagda perforeringar. Med bokstaven N betecknas längre, kontinuerliga snitt. Med Z betecknas blott enstaka knivsnitt. Med B slutligen betecknas med hjälp av vikning åstadkomna vikningslinjer.

25 Locket 43 bildar del av en i förpackningen placerbar tillsats generellt angiven med 46. Tillsatsen 46 och förpackningen 1 innefattar samverkande låsmedel för låsning av tillsatsen i det i Fig 1 och 3 illustrerade tillståndet, i vilket locket 43 är stängt, och ett andra tillstånd, i vilket locket 43 är dubbelvikt.

30 Tillsatsen 46 uppvisar ett bottenparti 47 för placering mot förpackningens botten 2 och ett bottenpartiet och ett lockparti hos tillsatsen förbindande panelelement 48 som när tillsatserna är placerad i förpackningen sträcker sig utmed och nära intill en av 35 förpackningens väggar.

Antingen panelelementet 48 eller själva förpackningen 1 uppvisar en urtagning 49 medan en i den angränsande väggen 14 hos förpackningen utformad första låsflik 50 är införbar i urtagningen 49 för låsningsändamål. I exemplet illustreras huru som urtagningen 49 är anordnad i tillsatsens panelelement 48 medan låsfliken 50, som är mottagbar i urtagningen 49, är anordnad på den motsatta sidan av förpackningen, nämligen den betecknad 5. Låsfliken 50 avses således bli införd i urtagningen 49 för att låsa tillsatsen på plats.

Låsmedlen för låsning av tillsatsen i dess första tillstånd, i vilket locket är stängt, innefattar en andra låsflik 51 som kan vara anordnad på förpackningen 1 men som här illustreras såsom anordnad på tillsatsen. Denna låsflik är avsedd för ingrepp med en andra urtagning 52 på antingen förpackningen 1 eller själva tillsatsen 46. I exemplet har låsfliken 51 utformats på själva tillsatsen medan urtagningen 52 är anordnad på förpackningen. En omkastning vore givetvis möjlig. När låsfliken 51 är inskjuten utåt från tillsatsen in i urtagningen 52 kommer det parti av förpackningen som befinner sig ovanför urtagningen 52 att förhindra oavsiktligt utträde av låsfliken 51 ur urtagningen 52, såvida icke otillbörliga krafter utövas. För lösgörande av låsflikens 51 ingrepp i urtagningen 52 kan fliken 51 föras i riktning mot tillsatsen 46, d v s bort från urtagningen 52 men det vore också möjligt att skjuta fliken 51 ännu längre in i urtagningen 52 så att vid efterföljande lyftning av locket 43 låsfliken 51 svänger undan genom utförande av en sväng rörelse kring en viktningsslinje 53 relativt tillsatsen.

Tillsatsen 46 uppvisar dessutom en tredje låsflik 54 anordnad att i lockets 43 dubbelvikta tillstånd (se Fig 7 och 11) ingripa med den i panelelementet 48 anordnade urtagningen 49 och en ytterligare urtagning 55 i det inre väggpartiet 12 hos väggen 1 för hållande av locket och hela tillsatsen i dess läge enligt Fig 7 och 11. Urtagningen 55 är i exemplet den urtagning som resulterar i utskärningen av låsfliken 50. När således låsfliken 54 är förd in i

urtagningarna 49,55 kommer låsfliken 50 att föras undan in i väggens 1 inre hålighet.

5 När således förpackningen och tillsatsen 46 befinner sig i läget enligt Fig 7 kan en i förpackningen tillhandahållen produkt exponeras för betraktaren genom att det inre utrymmet i förpackningen är blottat och vidare kan den nu såsom skylt eller informationstavla tjäna tillsatsen 46, som bildar en platt struktur utmed en av förpackningens väggar, vara försedd med för ändamålet lämpliga uppgifter, sådana som reklamtext, prisuppgift etc. 10 så att betraktaren erhåller önskad information tillsammans med att han kan visuellt studera den blottade produkten. Av det sagda framgår således att förpackningen och tillsatsen 46 bildar både emballage för förvaring och transport och en presentationsinrättning. 15 ning.

Det påpekas att givetvis den halvcirkulära formen hos snittet 45 kan ersättas av vilken som helst annan i sammanhanget önskad form. Det vore för övrigt möjligt att låta vikningslinjen 44 sträcka sig kontinuerligt i rak linje över hela locket utan att något snitt motsvarande det med 45 betecknade vore för handen, i vilket fall det dubbelvikta locket skulle komma att uppvisa en övre av en vikningslinje bildad kant som vore helt rak. Ett sådant utförande ligger inom ramen för uppfinningstanken i dess generella skepnad. 20 25 nad.

Genom att tillsatsen 46 uppvisar sidoklaffarna 76, som i dubbelvikt tillstånd kommer att befinna sig ovanför två motstående förpackningsväggars övre panelpartier under anliggning mot dessa kommer tillsatsen 46 att i sitt dubbelvikta tillstånd erhålla god låsning. 30

I Fig 14 illustreras ett utförande där en förpackning 1' mottager en tillsats 46'. Denna tillsats 46' bildar ett lock 43'. 35

I Fig 16-18 illustreras tillsatsen för sig. Som synes uppvisar denna tillsats ett bottenparti 47' samt medel för att lokalisera

- detta bottenparti på avstånd över en botten 2' hos förpackningen så att en dubbelbotten uppstår. Närmare bestämt utgörs bottenpartiets lokaliseringsmedel av nedåt utskjutande flikar 56 respektive 57. Bottenpartiet 47' har dessutom i exemplet sidoflikar 58 men dessa tänkes här vara vikta uppåt under bibringade av styvhet till bottenpartiet 47'. Det påpekas dock att en inom uppfinningens ram liggande variant är att vika sidoflänsarna 58 nedåt så att de kommer i kontakt med förpackningens botten.
- 10 I fliken 56 är utformad en låsflik 59 som vid nedåtvikning av bottenpartiets 47' ändflik 56 kvarstår i bottenpartiets plan och avses ingripa i en i en inre vägg hos förpackningen (se Fig 15) anordnad skåra 60 för låsändamål.
- 15 Tillsatsen uppvisar såsom framgår av Fig 16-18 två på inbördes avstånd anordnade lockpaneler 61,62. Således blir locket dubbelväggigt.
- 20 Tillsatsens bottenparti 47' är förbundet med de lockbildande panelerna 61,62 via ett panelelement 63 anordnat att när tillsatsen 46' är belägen i förpackningen sträcka sig parallellt med och nära intill en av förpackningens inre väggar. Panelelementet 63 övergår via en vikningslinje 64 i den undre lockpanelen 61, varvid en ytterligare låsflik 65 uppstår genom vikningen som en konsekvens av fliken avgränsande snitt. Denna flik 65 avses bli mottagen i en ytterligare i förpackningen anordnad skåra (syns ej i Fig 25 15) i en vägg motstående den som uppvisar skåran 60.
- 30 Den övre lockpanelen 62 uppvisar sidobelägna klaffar 67, vilka i exemplet är vikta nedåt och därigenom kommer att förstya lockpanelen 62. Vid övergången mellan lockpanelerna 61 och 62 är anordnat ett panelparti 68 begränsat av vikningslinjer. Detta panelparti 68 kommer att sträcka sig väsentligen vertikalt i tillsatsens normalläge i förpackningen såsom framgår av Fig 16 och 35 som en konsekvens av i lockpartiet 68 anbragta snitt uppstår en låsflik 69 passande in i skåran 66. Vid ytterändan av lockpanelen 62 finns ett ytterligare panelparti 70, som är nedåtvikt kring en

vikningslinje 71 så att det kommer att befinna sig väsentligen i plan med panelelementet 63. Tillsatsen 46' uppvisar en ytterligare låsflik 51', som är avsedd att låsande samverka med en urtagning 52' i likhet med vad som beskrivits i anslutning till det
5 först avhandlade utförandet. Låsfliken 51' är som synes utskuren i panelpartiet 70 och/eller lockpanelen 62.

De båda låsflikarna 65 och 69 är anordnade att automatiskt bringas i och ur ingrepp med tillhörande skåror i förpackningen
10 vid svängning av respektive lockpaneler 61 och 62. Med utgångspunkt från att tillsatsen befinner sig i förpackningen och locket är stängt (motsvarande läget enligt Fig 16) är således låsfliken 69 låsande mottagen i skåran 66. När den övre lockpanelen 62 svängs i öppnande riktning kring aktuell vikningslinje relativt den undre lockpanelen 61 kommer låsfliken 69 att också
15 svänga och att föras ut ur ingreppet i skåran 66. På omvänt sätt träder låsfliken 69 automatiskt in i skåran 66 när lockpanelen 62 svängs i låsande riktning. Motsvarande gäller för låsfliken 65 hörande till den undre lockpanelen 61. När den undre lockpanelen
20 61 således svängs i öppnande riktning kommer låsfliken 65 att medfölja svängrörelsen kring vikningslinjen 64 och träda ut ur ingreppet med tillhörande skåra. Omvänt träder låsfliken 65 in i denna skåra till låsning när den undre lockpanelen 61 svängs i stängande riktning. Det påpekas att vid normalt öppnande av tillsatsen först den övre lockpanelen öppnas och sedan den undre
25 svängs i öppningsriktning. Det observeras vidare att den övre lockpanelens 62 svängningscentrum relativt den undre lockpanelen 61 är beläget på motsatt sida i förhållande till svängcentrumet mellan den undre lockpanelen 61 och panelelementet 63.

30 Av speciellt Fig 16 och 18 framgår hurusom den övre lockpanelens sidobelägna klaffar 67 kan uppvisa låsflikar 75 bildande förlängningar i området av den övre lockpanelens svängcentrum. Dessa låsflikar 75 samverkar med av Fig 15 framgående skåror
35 76 i förpackningen på motsvarande sätt som låsfliken 69 samverkar med skåran 66. Genom att låsflikarna 75 har sitt plan orienterat väsentligen tvärs den övre lockpanelens 62 svängcentrum

kommer låsflikarna 75 att vinkelrätt mot nämnda svängcentrum erhålla relativt stor styvhet, något som ger en förbättrad låseffekt.

- 5 Den beskrivna tillsatsen 46' tillhandahåller följaktligen dubbelväggighet vad gäller såväl botten i förpackningen som dess lock, något som gör att en inuti förpackningen mellan tillsatsens bottenparti 47' och lockpanel 61 befintlig produkt erhåller gott skydd mot destruerande påverkan utifrån.

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- Det är givetvis möjligt att på många vis modifiera de detaljutföranden som här beskrivits utan att för den skull lämna ramen för den presenterade uppfinningstanken. Dylika fackmannamässiga variationsmöjligheter inbegripes följaktligen inom ramen för åbe-
15 ropat skyddsomfång. Det påpekas att uppfinningen icke är begränsad till något speciellt material så länge som materialet förmår uppvisa sådan vikbarhet som är en förutsättning för uppfinningen. Följaktligen kan såsom material för förpackningen och dess tillsatser komma ifråga papper, papp och kartong, plast mm.

20

- Det påpekas speciellt att förpackningen icke nödvändigtvis behöver ha fyra väggar såsom visas på ritningarna. Således är varje jämt antal väggar möjligt i enlighet med uppfinningstanken. Dessutom påpekas att inom ramen för efterföljande krav 1 faller
25 också sådana utföranden där i förpackningen enbart ingår två väggar jämte botten. Exempelvis skulle således uppfinningstanken kunna komma till förverkligande med enbart två väggar och botten, nämligen såsom en hörnförpackning att användas exempelvis som hörnskoning vid transport av objekt sådana som exempelvis skivor, dörrar eller liknande. Slutligen påpekas också
30 att botten i förpackningen icke nödvändigtvis behöver vara heltäckande. Bottenskivan skulle således kunna ha en urtagning, i vilket fall väggstrukturen skulle tendera att bilda en ringformation med central öppning.

35

Patentkrav:

1. Anordning vid en förpackning som, betraktat i sitt resta till-
stånd, innefattar en botten (2) och från denna uppskjutande,
5 ihåliga väggar (3-6), vilka vardera uppvisar ett inre (12-15)
och ett yttre (16-19) väggparti belägna på inbördes avstånd
under bildande av en hålighet mellan dem, samt panelpartier
(20-23), som bildar övre kanter hos förpackningens väggar
och som förbinder de inre och yttre väggpartierna med var-
andra, varvid förpackningen är bildad av ett vikbart ämne
10 uppvisande ett bottenparti (7), från detta utskjutande väggag-
gregat (8-11) omfattande de inre (12-15) och yttre (16-19)
väggpartierna och panelpartierna (20-23) samt en inrättning
för låsning av förpackningen i dess resta tillstånd, vilken in-
15 rättning innefattar en eller flera låsflikar (25, 26, 32, 33), kän-
netecknad därav, att väggaggregaten (8-11) hos ämnet vid
sina från bottenpartiet (7) vända ändar uppvisar klaffar (24,
27, 31, 34), vilka i förpackningens resta tillstånd anligger mot
ovansidan av bottenpartiet (7) och är belägna under panel-
20 partierna (20-23), och att vid ett hörn bildat av två
angränsande, i vinkel mot varandra sig sträckande väggar (3-
6) är med det inre väggpartiet (12-15) hos en första av
väggarna medelst en vikningslinje förbunden en låsflik (25,
26, 32, 33), som skjuter in i håligheten hos den andra av
25 väggarna i hörnet och är anordnad att låsa den första väggen
på plats genom anliggning mot insidan av den andra väggens
panelparti (21, 23).
2. Anordning enligt krav 1, kännetecknad därav, att envar av
30 klaffarna (24, 27, 31, 34) är anordnade att med sin yttre kant
stödja mot insidan av tillhörande yttre väggparti (16-19).
3. Anordning enligt krav 1 eller 2, kännetecknad därav, att lås-
fliken (25, 26, 32, 33) stödjer mot insidan av panelpartiet (21,
35 23) i närheten av en vikningslinje mellan panelpartiet och till-
hörande yttre väggparti (17, 19).

4. Anordning enligt något föregående krav, kännetecknad därav, att förpackningen uppvisar ett jämnt antal väggar (3-6).
5. Anordning enligt något föregående krav, kännetecknad därav, att vid en förpackning med fyra väggar (3-6), två motstående (3, 5) av dessa vardera har två låsflikar (25, 26, 32, 33) förbundna med sina inre väggpartier (12, 14) och belägna i angränsande väggars (4, 6) håligheter för att låsa de låsflikarna uppvisande väggarna på plats genom stödjande mot insidan av de sådana låsflikar saknande väggarnas panelpartier (21, 23).
6. Anordning enligt något av kraven 1-4, kännetecknad därav, att förpackningen bildar en icke-sluten konstruktion genom att uppvisa blott två väggar jämte botten.
7. Anordning enligt något föregående krav, kännetecknad därav, att två i en hålighet hos en vägg (4, 6) mottagna låsflikar (25, 26, 32, 33) hörande till två angränsande väggar (3, 5) har sina ytterändar anliggande mot varandra och insidan av det yttre väggpartiet (17, 19) hos nämnda vägg (4, 6), vars hålighet mottager låsflikarna.
8. Anordning vid en förpackning innefattande en botten (2), från denna uppskjutande väggar (3-6) samt ett lock (43), varvid locket (43) är försett med en vikningsanvisning (44) för att möjliggöra vikning av locket till ett dubbelvikt tillstånd, i vilket locket är beläget vid en av väggarna hos förpackningen under frilämnande av i huvudsak hela utrymmet i förpackningen och under uppskjutande över den övre kanten av förpackningens väggar, och varvid locket (43) vid två väsentligen vinkelrätt mot vikningsanvisningens sig sträckande kanter uppvisar klaffar (76), över vilka vikningsanvisningen (44) sträcker sig så att i lockets dubbelvikta tillstånd även klaffarna är dubbelvikta och belägna över två motstående av förpackningens väggar, kännetecknad därav, att klaffarna (76) i lockets stängda läge skjuter in i förpackningens innandöme

och att klaffarna (76) sträcker sig utmed väsentligen hela längden av lockets (43) väsentligen vinkelrätt mot vikningsanvisningen (44) sig sträckande kanter.

- 5 9. Anordning enligt krav 8, kännetecknad därav, att locket (43) uppvisar ett snitt (45), vilkets ändar ansluter till vikningsanvisningen och vilkets sträckning skiljer sig från vikanvisningen för att vid dubbelvikning av locket åstadkomma önskad kontur hos locket i dess dubbelvikta tillstånd.
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10. Anordning enligt krav 9, kännetecknad därav, att snittet (45) är väsentligen halvcirkulärt.
- 15
11. Anordning enligt något av kraven 8-10, kännetecknad därav, att locket (43) bildar del av en i förpackningen placerbar tillsats (46),
- 20
12. Anordning enligt krav 11, kännetecknad därav, att tillsatsen (46) och förpackningen (1) innefattar samverkande låsmedel (51, 52; 54, 55) för låsning av tillsatsen i ett första tillstånd, i vilket locket är stängt, och ett andra tillstånd, i vilket locket är dubbelvikt.
- 25
13. Anordning enligt något av kraven 11 och 12, kännetecknad därav, att tillsatsen uppvisar ett bottenparti (47) för placering mot förpackningens botten (2) och ett bottenpartiet och ett lockparti hos tillsatsen förbindande panelelement (48) som när tillsatsen är placerad i förpackningen sträcker sig utmed och nära intill en av förpackningens väggar.
- 30
14. Anordning enligt krav 13, kännetecknad därav, att antingen panelelementet (48) eller förpackningen (1) uppvisar en urtagning (49, 55) och att en i den angränsande väggen hos förpackningen eller panelelementet utformad första låsflik (50, 54) är införbar i urtagningen för låsningsändamål.
- 35

15. Anordning enligt krav 12, kännetecknad därav, att låsmedlen för låsning av tillsatsen (46) i dess första tillstånd, i vilket locket (43) är stängt, innefattar en andra låsflik (51) på tillsatsen eller förpackningen för ingrepp med en andra urtagning (52) på förpackningen eller tillsatsen.
16. Anordning enligt krav 14, kännetecknad därav, att tillsatsen (46) uppvisar en tredje låsflik (54) anordnat att i lockets dubbelvikta tillstånd ingripa med i panelelementet (48) och en av förpackningens väggar anordnade urtagningar (49,55) för hållande av locket i dess dubbelvikta tillstånd.
17. Anordning vid en förpackning innefattande en botten (2'), från denna uppskjutande väggar samt ett lock (43'), kännetecknad därav, att locket bildar del av en i förpackningen placerbar tillsats (46'), att denna tillsats uppvisar ett bottenparti (47') samt medel (56, 57) för att lokalisera detta bottenparti på avstånd över förpackningens botten så att en dubbelbotten uppstår, att tillsatsen (46') bildar locket med hjälp av två på inbördes avstånd anordnade lockpaneler (61, 62), vilka är svängbara såväl sinsemellan som relativt tillsatsen i övrigt, och att åtminstone en av lockpanelerna (61, 62) uppvisar en låsflik (65, 69, 75), som vid svängning av lockpanelen ifråga mot stängt läge automatiskt går i låsande ingrepp med en urtagning (66, 76) i förpackningen och vid svängning av lockpanelen ifråga mot öppet läge utträder ur det låsande ingreppet.
18. Anordning enligt krav 17, kännetecknad därav, att tillsatsens bottenparti (47') är förbundet med de lockbildande panelerna (61, 62) via ett panelelement (63) anordnat att när tillsatsen är belägen i förpackningen sträcka sig parallellt och nära intill en av förpackningens väggar.
19. Anordning enligt något av kraven 17 eller 18, kännetecknad därav, att bottenpartiet (47') hos tillsatsen uppvisar en eller flera flikar (59) för låsande/hållande ingrepp med motsvarande urtagningar (60) i förpackningen.

SAMMANDRAG AV UPPFINNINGEN

En anordning vid en förpackning innefattar en botten och från denna uppskjutande väggar. Förpackningen är bildad av ett vik-
5 bart ämne och innefattar en inrättning för låsning av förpack-
ningen i dess resta tillstånd. Låsningssinrättningen innefattar med
en vägg förbundna låsflikar (25, 26; 32, 33), vilka i förpackning-
ens resta tillstånd är belägna inuti en hålighet i en angränsande
vägg och anordnade att låsa den förstnämnda väggen genom att
10 stödja inifrån mot ett övre panelparti (21, 23) hos den angrän-
sande väggen.

(Fig 9)



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(54) Title: DEVICE IN PACKAGING (54) Titre: CARTON D'EMBALLAGE (57) Abstract <p>A device at a package comprises a bottom and walls protruding upwards therefrom. The package is formed by a foldable blank and comprises an arrangement for locking the package in its erected state. The locking arrangement comprises locking tips (25, 26; 32, 33) connected to a wall, which locking tips are located inside a cavity in an adjoining wall in the erected state of the package and arranged to lock the wall first mentioned by bearing upon an upper panel portion (21, 23) of the adjoining wall from the inside.</p> (57) Abrégé <p>Carton d'emballage comprenant un fond et des parois s'élevant depuis ce fond. Cet emballage est constitué par une ébauche pliable et comporte un dispositif permettant de maintenir l'emballage à l'état vertical lorsqu'il est monté. Ce dispositif est composé de pattes de blocage (25, 26; 32, 33) reliées à une paroi, placées à l'intérieur d'une cavité dans une paroi contiguë de l'emballage monté et conçues pour bloquer la première paroi par appui sur une partie panneau supérieure (21, 23) de la paroi contiguë depuis l'intérieur.</p>		

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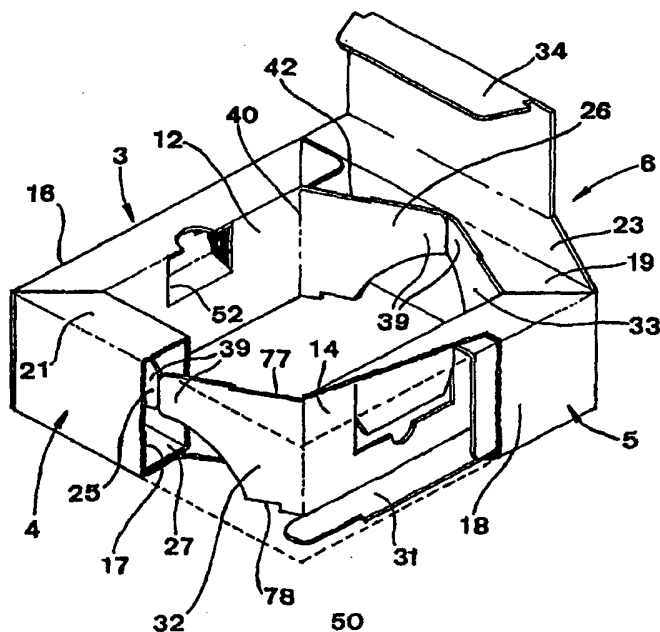
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(21) International Application Number: PCT/SE99/02266 (22) International Filing Date: 3 December 1999 (03.12.99) (30) Priority Data: 9804213-8 3 December 1998 (03.12.98) SE (71)(72) Applicant and Inventor: ÅGREN, Göran [SE/SE]; Persborg 8, S-805 95 Gävle (SE). (74) Agents: BJERKÉNS, Håkan et al.; Bjerkéns Patentbyrå KB, Box 1274, S-801 37 Gävle (SE).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>In English translation (filed in Swedish).</i>

(54) Title: **DEVICE IN PACKAGING**

(57) Abstract

A device at a package comprises a bottom and walls protruding upwards therefrom. The package is formed by a foldable blank and comprises an arrangement for locking the package in its erected state. The locking arrangement comprises locking tips (25, 26; 32, 33) connected to a wall, which locking tips are located inside a cavity in an adjoining wall in the erected state of the package and arranged to lock the wall first mentioned by bearing upon an upper panel portion (21, 23) of the adjoining wall from the inside.



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Description

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Device in packaging**FIELD OF THE INVENTION AND PRIOR ART**

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The present invention relates to devices at packages according to the precharacterizing parts of the subsequent claims 1, 8 and 17.

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15 At packages already known there are drawbacks which it has not been succeeded to remove until today. For example at packages of the type it is related to in the precharacterizing part of the subsequent claim 1 it is desirable to secure that the package is given good stability. For this purpose it is known to design the foldable blank with locking tips, flaps or the like but any satisfactory solution has not been achieved yet. Further, it is known to try to remove the problem of stability by means of glue joints, tapings etc. However, the disadvantage by such solutions is that it becomes difficult or impossible to bring the package into a collapsed state. Further, the work to bring the package into its erected state is complicated.

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As an example of prior art reference is made to US 2 447 243.

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30 The device defined in the precharacterizing part of the subsequent claim 8 is known by GB 476 873. Although the device illustrated therein solves the problem for distributors to expose the packed products for potential customers in a good way the disadvantage that the cover has a very unstable design is present. It would be desired to arrive to a more solid construction

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without for that reason effecting the possibilities of exposing the products in a negative way.

In connection with the package device defined in the precharacterizing part of the subsequent claim 18, which has correspondence in the description of US 5 223 121 it is established that the known device in some using situations is unsuitable because it is based on a design in which the cover is integrally joined with the rest of the package. Further, in the device already known the members for locking the cover in the closed position are unsatisfactory designed.

SUMMARY OF THE INVENTION

The object of the invention

One primary object of the invention is to develop the prior art according to the precharacterizing part of the subsequent claim 1 in a way that a substantial improved locking of the package in its erected state may be achieved by in this connection well acceptable measures.

According to a secondary aspect of the invention it is intended to improve the prior art according to the precharacterizing part of claim 8 in a way that the cover of the package is given stability.

According to a third aspect of the invention the object is to create possibilities for a convenient and safe function regarding locking and releasing of cover at the device according to the precharacterizing part of the claim 18.

THE SOLUTIONS ACCORDING TO THE INVENTION

In accordance with the primary aspect of the invention the object propounded is performed by what is defined in the characteriz-

ing part of claim 1. The flaps and the locking tips defined will efficiently lock the package in its erected state without making it necessary to resort to measures such as gluing, stitching etc.

According to a second aspect of the invention the object propounded is performed by what appears from the characterizing part of the claim 8. A very stable cover construction is by that obtained, which not intrudes on the manoeuvrability of the cover construction for exposing purposes.

According to the characterizing part of the subsequent claim 18 the third aspect of the invention has its object satisfied by resorting to the locking tips defined, which tips automatically moves into locking and releasing function, respectively, when the present cover portion is pivoted for closing and opening, respectively.

BRIEF DESCRIPTION OF THE DRAWINGS

With reference to the appended drawings below follows a description in more detail of preferred embodiments of the invention cited as examples.

In the drawings:

- Fig. 1 is a perspective view of the package according to the invention including an attachment forming a cover,
- Fig. 2 is a view similar to Fig. 1 without the attachment,
- Fig. 3 is a view similar to the view in Fig. 1 but showing the attachment itself only,

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Fig. 4 is a developed view of the attachment according to Fig. 3,

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5 Fig. 5 and 6 are perspective views of the attachment according to Fig. 3 and 4 in the position when the cover of the attachment is double folded,

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Fig. 7 is a view similar to Fig. 1 but illustrating the attachment in its position according to Fig. 5,

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Fig. 8 is a partly cut view of the package with its attachment,

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Fig. 9 is a view illustrating the receptacle itself cut up and partly opened,

Fig. 10 is a view similar to the view in Fig. 9 but illustrating the package in an even more collapsed state,

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Fig. 11 is an enlarged view similar to the view in Fig. 7 but in addition partly cut,

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Fig. 12 is a elevation view illustrating a foldable blank in a plane state intended for forming the package,

Fig. 13 is a similar view of the attachment itself,

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Fig. 14 is a view illustrating a package somewhat modified with an attachment for forming a cover,

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Fig. 15 is a view of the package itself according to Fig. 14 with the attachment removed,

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Fig. 16 and Fig. 17 are perspective views from opposite directions illustrating the attachment itself, and

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Fig. 18 is a view illustrating a foldable blank for forming the attachment according to Fig. 16 and 17 in a plane unfolded state.

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DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

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In Fig. 1 and 2 a package comprising a bottom 2 and four hollow walls 3-6 protruding upwards therefrom generally denoted by 1 is illustrated. The package is formed by a foldable blank illustrated in Fig. 12 in a plane unfolded state, which blank has a bottom portion 7, wall assemblies 8-11 with internal 12-15 and external 16-19 wall portions for forming the hollow walls 3-6 and panel portions 20-23, which form upper edges of the walls of the package and connect the internal and external wall portions to each other.

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In addition the package is provided with an arrangement for locking the package in its erected state. This arrangement comprises among other things locking tips denoted with 25, 26, 32, 33.

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More precisely, the locking arrangement comprises locking tips 25; 32 respective 26; 33 included in two opposite first wall assemblies 8, 10, which locking tips in the erected state of the package (see especially Fig. 9) are located inside a respective wall 4 respective 6 formed by a second wall assembly 9, 11, and are arranged to lock the walls 3 and 5 in place by bearing against the inner side of the panel portions 21, 23 on their inner side. By the fact that the locking tips 25, 26, 32, 33 in this way will be holded down with assistance of the panel portions 21 and 23 the internal wall portions 12, 14, which are connected with locking tips via respective folding lines, will be prevented from pivoting in a direction towards the interior of the receptacle in releasing direction. The locking tips are designed with a suitable length so that the lever arm conditions required are achieved.

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From Fig. 9 it appears that the locking tips on their upper edges may have cutting-outs 77, which have the purpose to secure that it will be the outer ends of the locking tips that contact the lower side of the panel portions 21, 23 so that a great lever arm is achieved. As also will be clear from Fig. 9 and 10 the device is such that the outer ends of the locking tips will be located fairly close to the folding line between the external wall portions 17 respective 19 included in the walls 4, 6 and the panel portions 21 respective 23. This location of the points of attack of the force of the locking tips means that substantially the external wall portions 17 and 19 will act force transferring without applying any such great moment on the panel portions 21 and 23 so that is a risk present that the package unintentionally is effected in an unlocking direction.

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It appears from Fig. 9 how the locking tips 25 and 26 via folding lines 40 are connected with the internal wall portion 12 of the wall 3 while the locking tips 32, 33 are connected with the internal wall portion 14 of the wall 5. At the top these wall portions 12, 14 are held substantially parallel to each other but at a distance in relation to external wall portions 16, 17 included in the walls 3 respective 5 by means of the panel portions 20, 22. Flaps 24 respective 31 (see both Fig. 9 and 12) function as spacers between the respective internal and external wall portions 12; 16 respective 14; 18 in the lower area of the package. The flaps 24 and 31 are located above the bottom 7 and may bear against this and bear with their outer edges upon the inner side of the outer wall portions 16, 18.

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Flaps 27 and 34 which connect to the internal wall portions 13, 15 included in the wall assemblies 9, 11 work as locking members for these, i.e. for locking of the internal and external wall portions of the walls 4 respective 6 in a substantially parallel condition at a mutual distance. The flaps 24 and 31 will be located in the bottom area of the package below the upper panel portions 20 respective 22 in the same way that the flaps 27 re-

spective 34 will be located in the bottom area of the package below the panel portions 21 respective 23 associated thereto. Thus, the hollow character of the walls 3-6 is established.

Inclined bevels for example on the panel portions 21-24 are present in a conventional way for making the panel portions to fit together and support edge against edge to each other in the corner area of the package.

Especially from Fig. 10 it appears how flaps 27-28 are included in the package in its erected state; more precisely this is illustrated in Fig. 10 by means of the flaps 29/30 and 35/36. To be more precise, these flaps work for erecting the wall assemblies 9, 11 respective 8, 10 and are located in the corner area of the package.

Thus, the locking tips 25, 26 respective 32, 33 are connected with the internal wall portions 12 respective 14 of the walls 3, 5 and lock these by being located below the panel portions 21, 23, which are locked by means of the internal wall portions 13, 15 and the flaps 27, 34.

It is preferred that the locking tips 25, 26, 32, 33 extend obliquely from their points of attachment in relation to the inner walls 12, 14 out towards the ends 39 of the tips. This obliquity means that the ends 39 of the supporting tips will be located close to the folding line between the panel portions 21, 23 and the outer wall portions 17, 19. It appears from Fig. 10 for instance that the supporting tips are provided with cutting-outs 41. These have the task to facilitate the folding of the package.

It appears from for instance Fig. 9 and 11 that the ends 39 of the locking tips may bear against each other in pairs. It is stressed that this is not a demand. On the other hand such a bearing may result in the advantage that the locking tips are held at an adequate place in a safer way with their ends close to or in

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10 contact with the external wall portions of the walls 4 and 6, i.e. that the locking tips not unintentionally become located closer or next to the internal wall portions of these walls 4, 6.

15 5 From Fig. 9 and 12 for instance it appears that in the lower part the locking tips are provided with cutting-outs 78. These have the purpose of allowing the flaps 27 and 34 of the walls 4, 6 to be moved in under the locking tips, where the flaps 27, 34 will be kept in place in an efficient way.

20 10 When erecting the package with start from the plane position according to Fig. 12 first the wall assemblies 8, 10 having the locking tips are pivoted upwards and inwards toward the middle of the package so that the walls 3 and 5 are formed. Thereafter
25 15 the wall assemblies 9 and 11 are pivoted upwards and inwards for forming the walls 4, 6. By the fact that the flaps 27, 34 are pivoted in under the locking tips to the end position that is illustrated for the flap 27 in Fig. 9 the package in its entirety will be well locked in its erected state.

30 20 In Fig. 1 a cover generally denoted with 43 is illustrated. These cover is provided with a folding notch 44 for enabling folding of the cover to a double folded state illustrated in Fig. 5, 6 and 7, in which state the cover is located at one of the walls of the
35 25 package while leaving mainly the whole room in the package free and while protruding upwards above the upper edge of the walls of the package. The cover 43 (Fig. 1 and 7) has in the example a cut 45, the ends of which connect to the folding notch
40 30 44 and the extension of which is different from the folding notch 44 for providing the outline of the cover desired in its double folded state when double folding the cover.

45 35 The described cut 44 is in the example substantially semicircular, which means that when the cover is double folded it will have a semicircular portion 75 at the top.

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In Fig. 3 the cover 43 is illustrated. This has flaps 76 along two edges extending substantially perpendicularly to the folding line 44 (see also the unfolded blank in Fig. 13). These flaps 76 protrude into the interior of the package in the closed position of the cover. The folding line 44 extends across the flaps 76 so that also the flaps 76 are double folded in the double folded state of the cover and more precisely so that they lay substantially in parallelism with the plane of the double folded cover 43. In the closed position of the cover the flaps 76 will stabilise the cover since they extend perpendicularly to the main plane of the cover.

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In Fig. 12 and 13 the reference x is intended to indicate folding lines established by means of several perforations preplaced in line with each other. By the letter N longer continuous cuts are denoted. With the letter Z only separate knife cuts are denoted. Finally with the letter B folding lines achieved by means of folding are denoted.

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The cover 43 forms part of an attachment placeable in the package and generally denoted by 46. The attachment 46 and the package 1 comprise co-operating locking means for locking the attachment in the state illustrated in Fig. 1 and 3, in which the cover 43 is closed, and in a second state, in which the cover 43 is double folded.

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The attachment 46 has a bottom portion 47 for placing against the bottom 2 of the package and a panel element 48 connecting the bottom portion and a cover portion of the attachment which panel element extends along and closed to one of the walls of the package when the attachments are placed in the package.

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Either the panel element 48 or the package 1 itself has a recess 49 while a first locking tip 50 designed in the adjoining wall 14 of the package is introducable in the recess 49 for locking purposes. In the example it is illustrated how the recess 49 is ar-

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5 ranged in the panel element 48 of the attachment while the locking tip 50, which is receivable in the recess 49, is arranged on the opposite side of the package, namely the side denoted 5. Thus, the locking tip 50 is intended to be introduced in the recess 49 for locking the attachment in place.

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25 The locking means for locking the attachment in its first state, in which the cover is closed, comprise a second locking tip 51 which may be arranged on the package 1 but which is illustrated as being arranged on the attachment herein. This locking tip is intended for engagement with a second recess 52 on either the package 1 or the attachment 46 itself. In the example the locking tip 51 has been designed on the attachment itself while the recess 52 is arranged on the package. Certainly, an inversion would be possible. When the locking tip 51 is inserted outwards from the attachment into the recess 52 the portion of the package being above the recess 52 will prevent unintentionally withdrawal of the locking tip 51 out of the recess 52, unless inappropriate forces are exerted. For releasing the engagement of the locking tip 51 in the recess 52 the tip 51 may be moved in a direction toward the attachment 46, i.e. away from the recess 52 but it also would be possible to push the tip 51 even longer into the recess 52 so that in a subsequent lifting of the cover 43 the locking tip 51 pivots away by performing a pivot motion about the folding line 53 in relation to the attachment.

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55 The attachment 46 has also a third locking tip 54 arranged to engage with the recess 49 arranged in the panel element 48 in the double folded state (see Fig. 7 and 11) of the cover 43 and one further recess 55 in the internal wall portion 12 of the wall 1 for holding the cover and the entire attachment in its position according to Fig. 7 and 11. In the example the recess 55 is that recess that results when cutting-out the locking tip 50. When the locking tip 54 is inserted into the recesses 49, 55 the locking tip 50 will be moved away into the inner cavity of the wall 1.

Thus, when the package and the attachment 46 are in the position according to Fig. 7 a product placed in the package may be exposed for the observer by the fact that the inner room in the package is uncovered and further the attachment 46 now serving as a sign or information board, which attachment forms a plane structure along one of the walls of the package, may be provided with informations suitable for the purpose, such as advertising copy, cost etc. so that the observer receives the information desired together with the fact that he may study the uncovered product visually. Thus, from the above it appears that the package and the attachment 46 form both emballage for storage and transportation and a presentation arrangement.

It is pointed out that certainly the semicircular shape of the cut 45 may be replaced by any other shape desired in this connection. Besides, it would be possible to allow the folding line 44 to extend continuously in a straight line over the whole cover without any cut corresponding to that denoted with 45 present, in which case the double folded cover would have an upper edge formed by the folding line which edge would be completely straight. Such an embodiment is within the scope of the idea of the invention in the general shape thereof.

By the fact that the attachment 46 has side flaps 76, which in the double folded state will be located above the upper parallel portions of two opposite package walls during bearing thereagainst, the attachment 46 will receive good locking in its double folded state.

In Fig. 14 an embodiment in which a package 1' receives an attachment 46' is illustrated. This attachment 46' forms a cover 43'.

In Fig. 16-18 the attachment itself is illustrated. As appears this attachment has a bottom portion 47' and means for locating this bottom portion at a distance above a bottom 2' of the package

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so that a double bottom is the result. More precisely the locating means of the bottom portion is represented by tips 56 and 57, respectively, protruding downwardly. In the example the bottom portion 47' also has side tips 58 but these are here meant to be folded upwards during giving rigidity to the bottom portion 47'. However, it is pointed out that a variant within the scope of the invention is to fold the side flanges 58 downward so that they will be in contact with the bottom of the package.

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In the tip 56 a locking tip 59 is designed which remain in the plane of the bottom portion when folding the end tip 56 of the bottom portion 47' downwards and which is intended to engage into a cut 60 arranged in an inner wall of the package (see Fig. 15) for locking purposes.

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The attachment has as appears from Fig. 16-18 two lock panels 61, 62 arranged at a mutual distance. Thus, the cover becomes double-walled.

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The bottom portion 47' of the attachment is connected with the cover forming panels 61, 62 via a panel element 63 arranged to extend parallel and close to one of the inner walls of the package when the attachment 46' is located in the package. The panel element 63 passes into the lower cover panel 61 via a folding line 64, whereby a further locking tip 65 is created by the folding as a consequence of cuts delimited by the tip. This tip 65 is intended to be received in a further cut (not to be seen in Fig. 15) arranged in the package in a wall opposite to the wall which has the cut 60.

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The upper cover panel 62 has lateral flaps 67, which in the example are folded downward and therethrough will stiffen the cover panel 62. At the passage between the cover panels 61 and 62 a panel portion 68 limited by folding lines is arranged. This panel portion 68 will extend substantially vertically in the normal position of the attachment in the package as appears

5 from Fig. 16 and as a consequence of cuts arranged in the cover
portion 68 a locking tip 69 fitting in the cut 66 is created. At the
10 outer end of the cover panel 62 there is a further panel portion
70, which is folded downwardly about a folding line 71 so that it
5 will be located substantially in level with the panel element 63.
The attachment 46' has a further locking tip 51', which is intended
15 to cooperate with a recess 52' in a locking way in similar
to what is described in connection with the first treated embodiment.
As can be seen the locking tip 51' is cut out in the panel
10 portion 70 and/or the cover panel 62.

20 The two locking tips 65 and 69 are arranged to automatically be
brought into and out of engagement with associated cuts in the
package when pivoting of respective lock panels 61 and 62.
15 Starting from that the attachment being inside the package and
the cover is closed (corresponding to the position according to
Fig. 16) thus the locking tip 69 is lockingly received in the cut
25 66. When the upper lock panel 62 is pivoted in opening direction
about the present folding line in relation to the lower cover panel
30 61 the locking tip 69 will also pivot and be moved out of engagement
in the cut 66. In the opposite way the locking tip 69 moves
automatically into the cut 66 when the cover panel 62 is pivoted
35 in locking direction. The corresponding applies to the locking
tip 65 associated to the lower cover panel 61. When the
25 lower cover panel 61 thus is pivoted in opening direction the
locking tip 65 will follow the pivot motion about the folding line
40 64 and move out of engagement with the cut associated thereto.
Inversely, the locking tip 65 moves into this cut to locking when
the lower cover panel 61 is pivoted in closing direction. It is
30 pointed out that in normal opening of the attachment first the
upper cover panel is opened and then the lower is pivoted in
45 opening direction. Further, it is noted that the pivoting centre of
the upper cover panel 62 in relation the lower cover panel 61 is
located on the opposite side in relation to the pivoting centre
35 between the lower cover panel 61 and the panel element 63.

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Especially, it appears from Fig. 16 and 18 how the lateral flaps 67 of the upper cover panel may have locking tips 75 forming extensions in the area of the pivoting centre of the upper cover panel. These locking tips 75 cooperate with cuts 76 in the package, which are clear by Fig. 15, in a corresponding way that the locking tip 69 cooperates with the cut 66. By the fact that the locking tips 75 have the plane thereof orientated substantially across the pivoting centre of the upper cover panel 62 the locking tips 75 will receive fairly great rigidity perpendicularly to said pivoting centre, which gives an improved locking result.

Thus, the attachment 46' described provides double walls regarding the bottom in the package as well as its cover, something which makes that a product located inside the package between the bottom portion 47' of the attachment and the cover panel 61 receives a good protection against destroying effecting from outside.

Certainly, it is possible to modify the embodiments described herein in many ways, without departing from the scope of the idea of the invention presented. Accordingly, such variation possibilities by experts are included within the scope of the claimed protection. It is pointed out that the invention not is restricted to any special material as long as the material has such a foldiness which is a requirement for the invention. Thus, as material for the package and its attachments paper, card-board and paste-board, plastic etc. are possible.

Especially it is pointed out that the package not necessary needs to have four walls as it is illustrated in the drawings. Thus, every even number of walls is possible according to the idea of the invention. In addition, it is pointed out that within the scope of the subsequent claim 1 such embodiments in which the package includes only two walls and a bottom are included to. For example the idea of the invention would be realised with only two walls and a bottom, namely as a corner package to be

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used for example for spare of corner in transport of objects such as for example plates, doors or the like. Finally, it is also pointed out that the bottom in the package not necessary needs to be completely covering. Thus, the bottom plate would have a recess, in which case the wall structure would tend to form a ring formation with a central opening.

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Claims

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Claims

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5 1. A device at a package which in its erected state comprises a bottom (2) and hollow walls (3-6) protruding upwards therefrom, which walls each has an internal (12-15) and an external (16-19) wall portion located at a mutual distance while forming a cavity therebetween, and panel portions (20-23), which form upper edges of the walls of the package and which connect the internal and external wall portions to each other, said package being made of a foldable blank having a bottom portion (7), wall assemblies (8-11) protruding therefrom and comprising the internal (12-15) and external (16-19) wall portions and the panel portions (20-23), and an arrangement for locking the package in its erected state, which arrangement comprises one or more locking tips (25, 26, 32, 33), characterized in that the wall assemblies (8-11) of the blank have flaps (24, 27, 31, 34) at their ends turned away from the bottom portion (7), which bear upon the upper side of the bottom portion (7) in the erected state of the package and are located below the panel portions (20-23), and in that at a corner formed by two adjoining walls (3-6) extending in an angle toward each other, a locking tip (25, 26, 32, 33) is connected with the internal wall portion (12-15) of a first of the walls by means of a folding line, which locking tip protrudes into the cavity of the other of the walls in the corner and which is arranged to lock the first wall in place by bearing against the inner side of the panel portion (21, 23) of the other wall.

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2. A device according to claim 1, characterized in that each of the flaps (24, 27, 31, 34) are arranged to bear against the inside of the external wall portion (16-19) associated thereto by its outer edge.

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3. A device according to claim 1 or 2, characterized in that the locking tip (25, 26, 32, 33) bears against the inner side of the panel portion (21, 23) adjacent to a folding line between the

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panel portion and the external wall portion (17, 19) associated thereto.

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4. A device according to any previous claim, characterized in
5 that the package has an even number of walls (3-6).

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5. A device according to any previous claim, characterized in
that at a package with four walls (3-6), two opposite (3, 5) of
10 these walls have two locking tips (25, 26, 32, 33) connected with
their internal wall portions (12, 14) and located in the cavities of
20 adjoining walls (4, 6) for locking the walls having the locking tips
in place by bearing against the inner side of the panel portions
(21, 23) of the walls without such locking tips.

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6. A device according to any of the claims 1-4, characterized in
that the package forms a non-closed construction by having two
walls only and a bottom.

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7. A device according to any previous claim, characterized in
that two locking tips (25, 26, 32, 33) received in a cavity of a
wall (4, 6) and associated to two adjoining walls (3, 5) have their
outer ends in contact with each other and the inner side of the
35 external wall portion (17, 19) of said wall (4, 6), the cavity of
which receives the locking tips.

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8. A device at a package comprising a bottom (2), walls (3-6)
protruding upwards from the bottom and a cover (43), said cover
40 (43) being provided with a folding notch (44) for enabling folding
of the cover to a double folded state, in which state the cover is
30 located at one of the walls of the package while leaving mainly
the whole room in the package free and while protruding up-
wards above the upper edge of the walls of the package, and
45 said cover (43) has flaps (76) at two edges extending substan-
tially perpendicularly in relation to the folding notch, above
35 which flaps the folding notch (44) extends so that also the flaps
are double folded in the double folded state of the cover and lo-

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5 cated above two opposite walls of the walls of the package, characterized in that the flaps (76) protrude into the interior of the package in the closed position of the cover and that the flaps (76) extend along substantially the whole length of the edges of the cover (43), which edges extend substantially perpendicularly to the folding notch (44).

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10 9. A device according to claim 8, characterized in that the cover (43) has a cut (45), the ends of which connect to the folding notch and the extension of which is different from the folding notch for providing the outline of the cover desired in its double folded state when double folding the cover.

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25 10. A device according to claim 9, characterized in that the cut (45) is substantially semicircular.

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20 11. A device according to any of claims 8-10, characterized in that the cover (43) forms a part of an attachment (46) placeable in the package.

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25 12. A device according to claim 11, characterized in that the attachment (46) and the package (1) comprise locking means (51, 52; 54, 55) co-operating for locking the attachment in a first state, in which the cover is closed, and in another state, in which the cover is double folded.

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30 13. A device according to any of the claims 11 and 12, characterized in that the attachment unit has a bottom portion (47) for placing against the bottom (2) of the package and a panel element (48) connecting the bottom portion and a cover portion of the attachment, which panel element extends along and close to one of the walls of the package when the attachment is placed in the package.

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50 35 14. A device according to claim 13, characterized in that either the panel element (48) or the package (1) has a recess (49, 55)

and that a first locking tip (50, 54) designed in the adjoining wall of the package or in the panel element is introducable in the recess for locking purposes.

15. A device according to claim 12, characterized in that the looking means for looking the attachment (46) in its first state, in which the cover (43) is closed, comprise a second locking tip (51) on the attachment or the package for engagement with a second recess (52) on the package or the attachment.

16. A device according to claim 14, characterized in that the attachment (46) has a third locking tip (54) arranged to engage with recesses (49, 55) arranged in the panel element (48) and one of the walls of the package in the double folded state of the cover for holding the cover in its double folded state.

17. A device at a package comprising a bottom (2'), walls protruding upwards from the bottom and a cover (43'), characterized in that the cover forms part of an attachment (46') placeable in the package, in that this attachment has a bottom portion (47') and means (56, 57) for locating this bottom portion at a distance above the bottom of the package so that a double bottom is created, in that the attachment unit (46') forms the cover by means of two cover panels (61, 62) arranged at a mutual distance, which cover panels are pivotable with respect to each other as well as in relation to the rest of the attachment, and in that at least one of the cover panels (61, 62) has a locking tip (65, 69, 75), which automatically moves into locking engagement with a recess (66, 76) in the package when pivoting the present cover panel towards the closed position and which moves out of the locking engagement when pivoting the present cover panel towards the open position.

18. A device according to claim 17, characterized in that the bottom portion (47') of the attachment is connected with the panels (61, 62) forming the cover through a panel element (63)

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arranged to extend parallel and close to one of the walls of the package when the attachment unit is located in the package.

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19. A device according to any of the claims 17 or 18, character-
5 ized in that the bottom portion (47') of the attachment has one or more tips (49) for locking/holding engagement with corresponding recesses (60) in the package.

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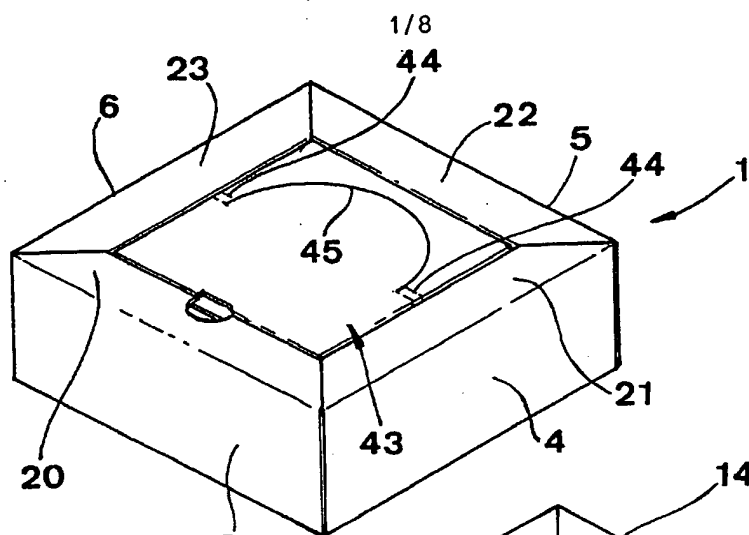


Fig 1

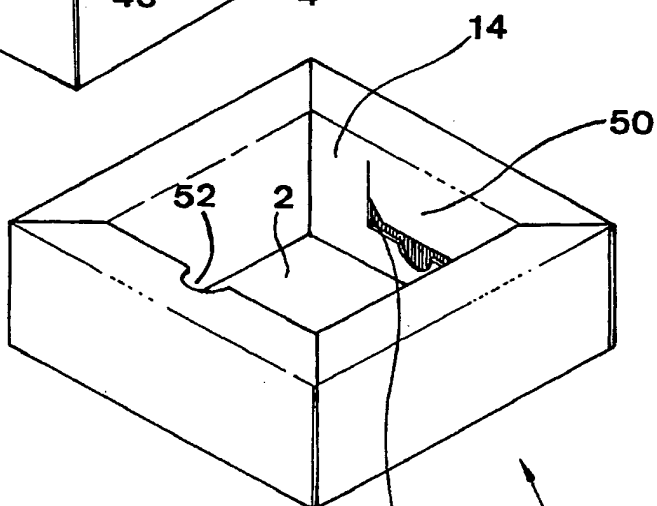


Fig 2

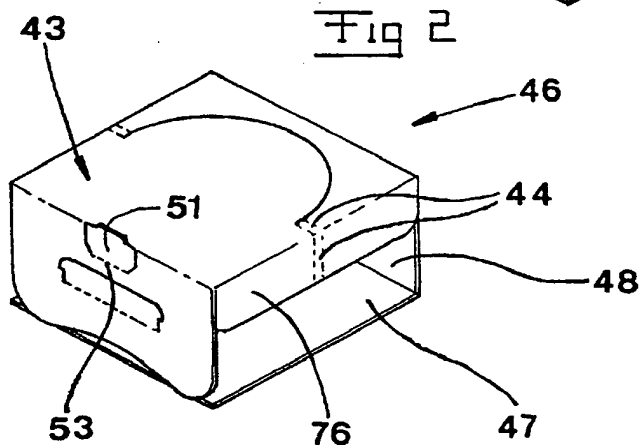


Fig 3

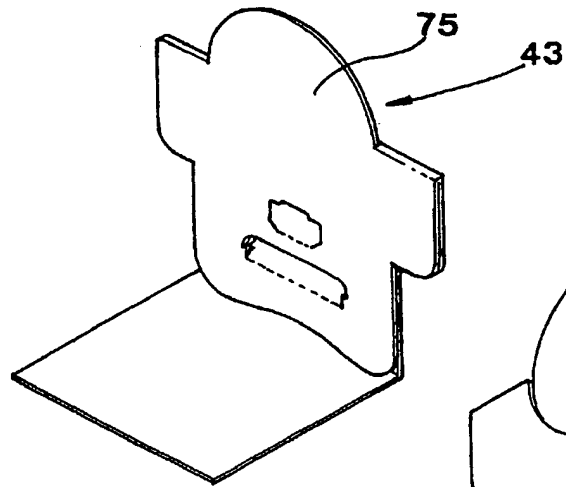


Fig 5

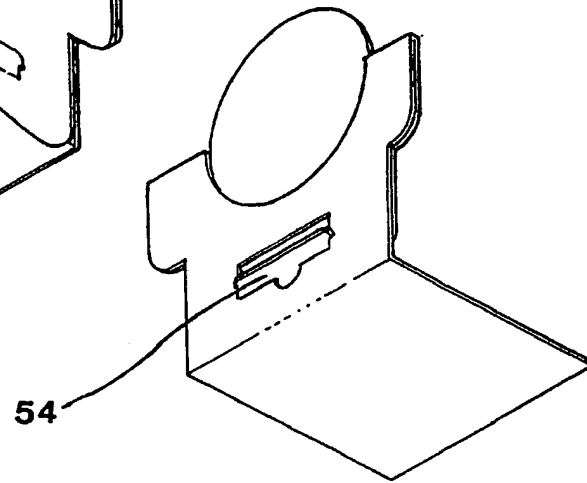


Fig 6

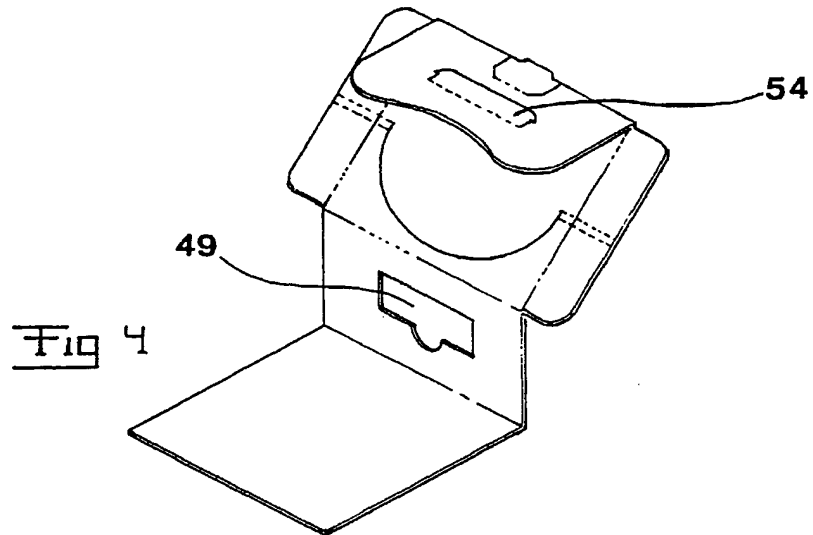
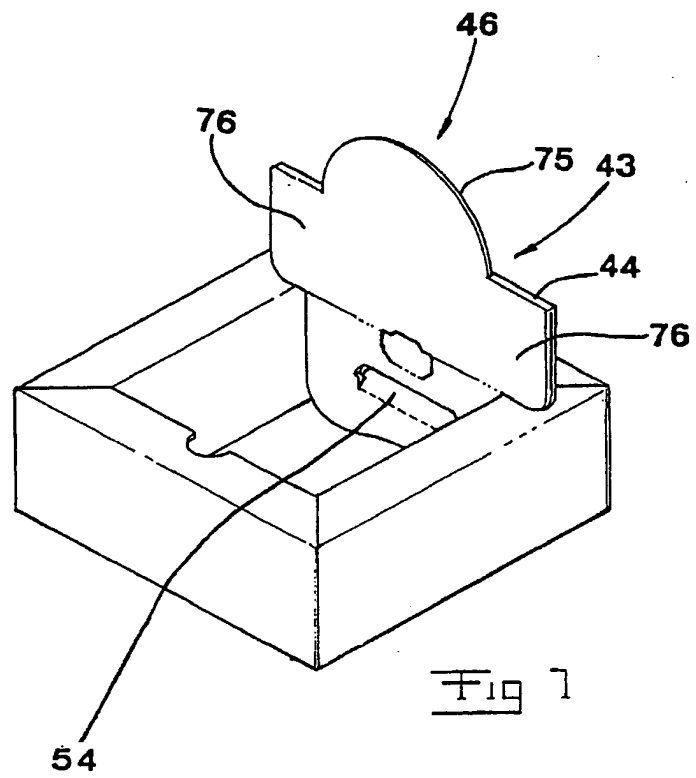
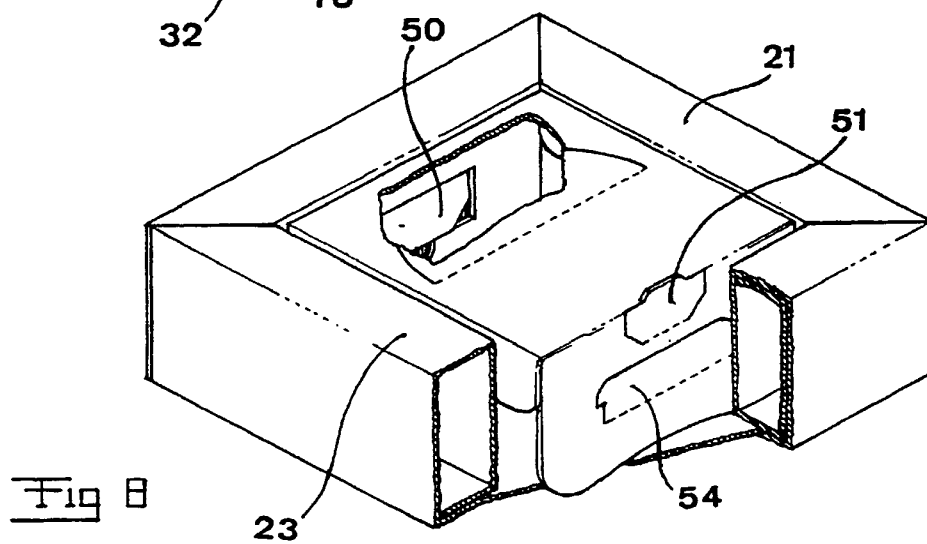
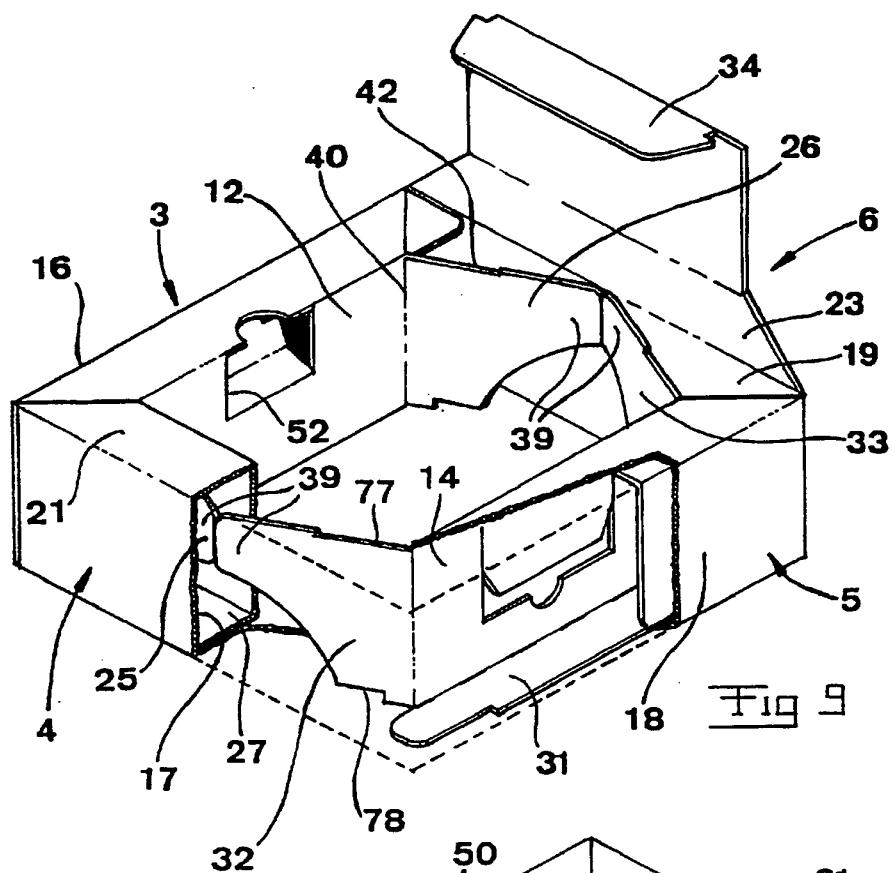


Fig 4





SUBSTITUTE SHEET (RULE 26)

Fig 11

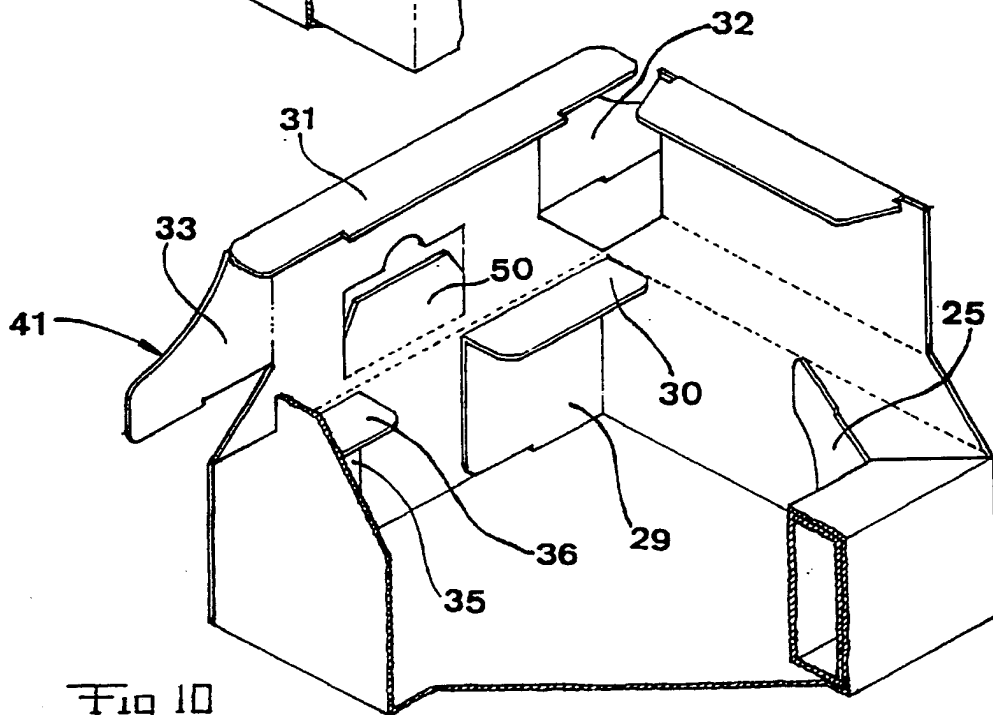
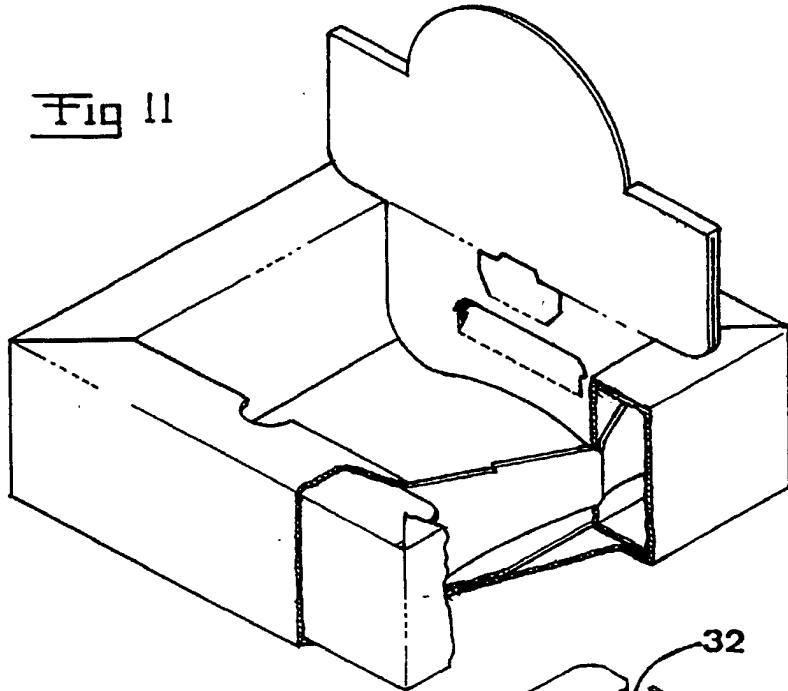
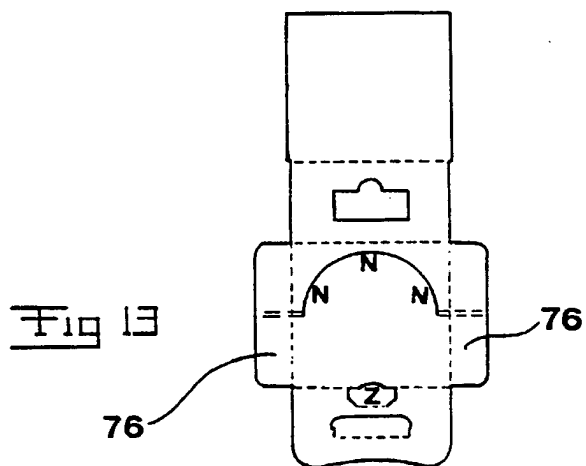
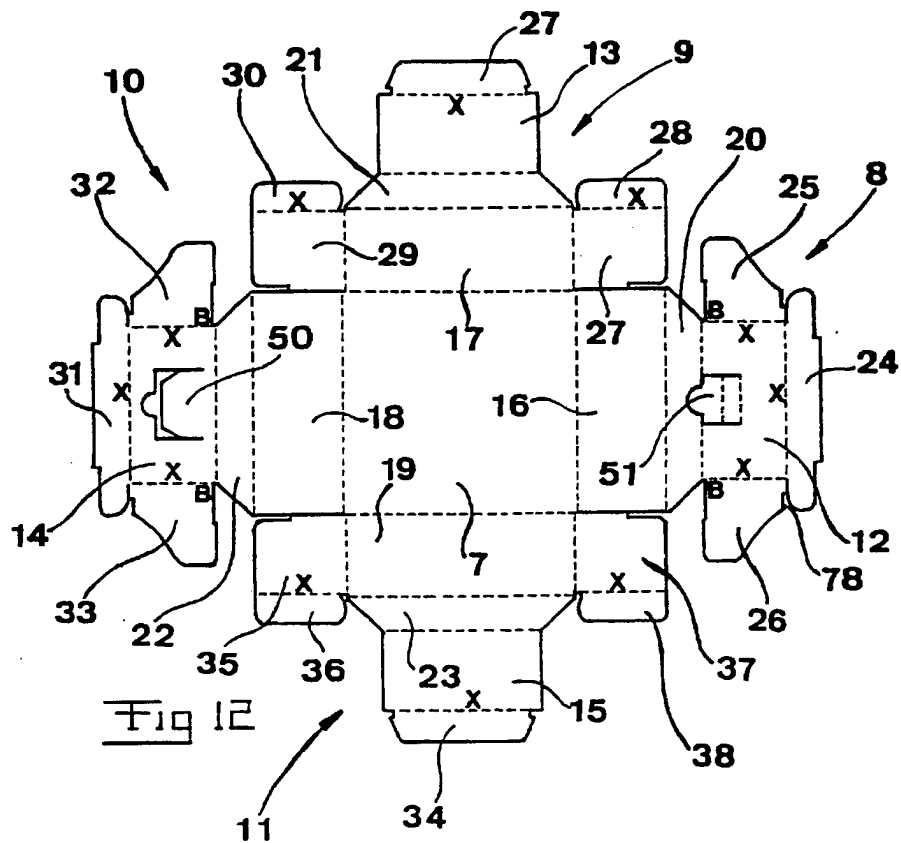


Fig 10



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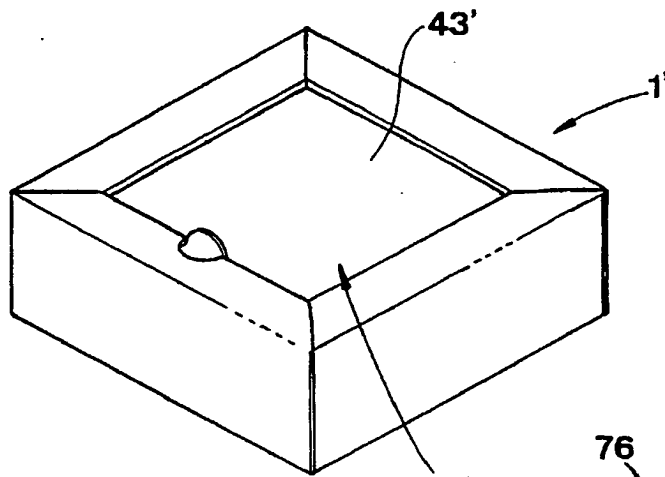


Fig 14

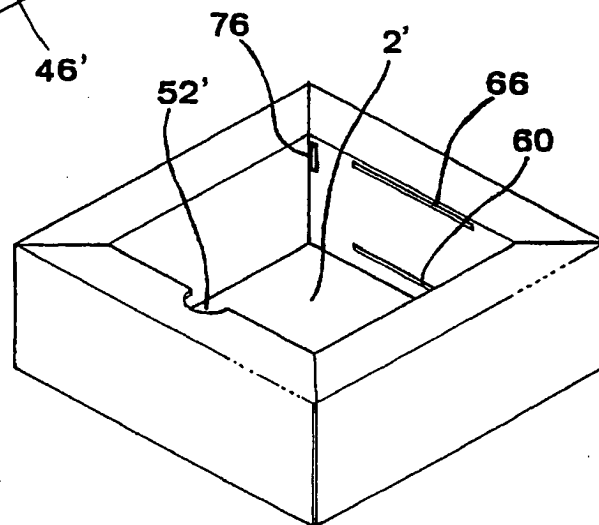


Fig 15

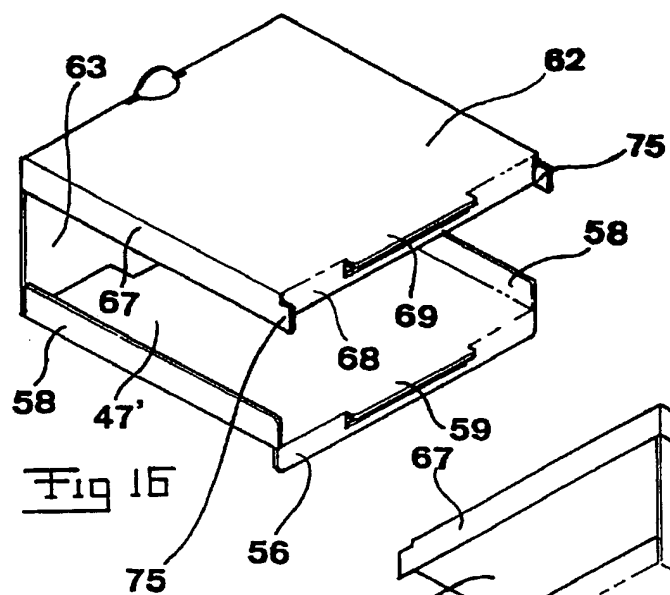


Fig 16

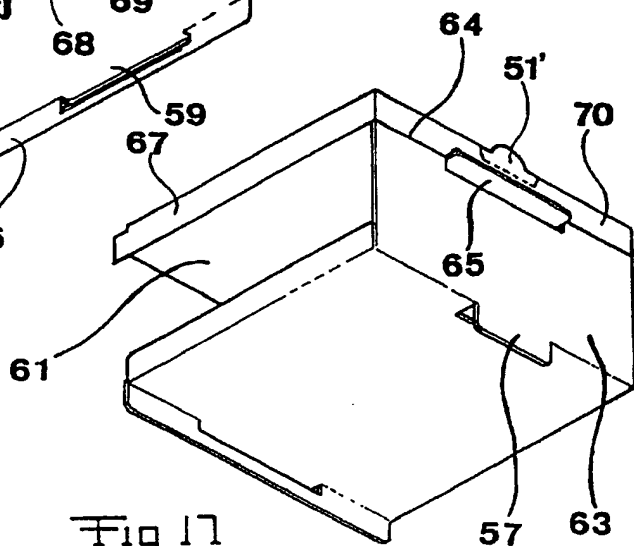


Fig 17

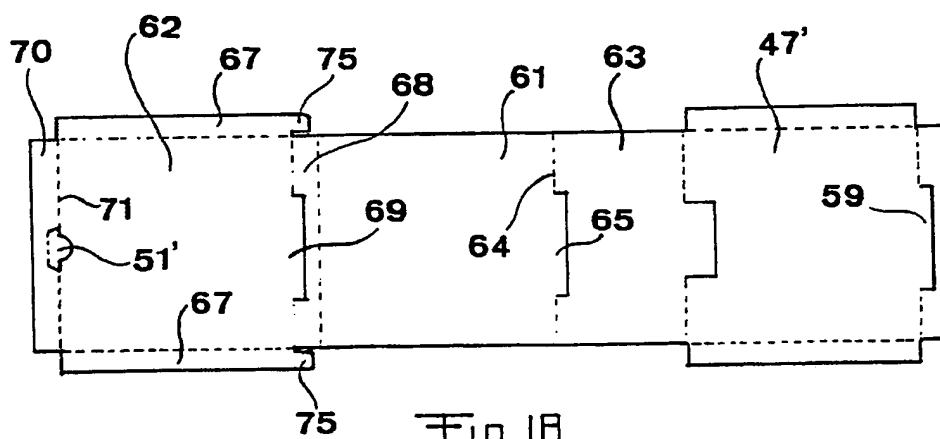


Fig 18

1
INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/02266

A. CLASSIFICATION OF SUBJECT MATTER IPC7: B65D 5/22, B65D 5/50, B65D 5/52 <small>According to International Patent Classification (IPC) or to both national classification and IPC</small>		
B. FIELDS SEARCHED <small>Minimum documentation searched (classification system followed by classification symbols)</small> IPC7: B65D <small>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</small> SE,DK,FI,NO classes as above <small>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</small> WPI, EPODOC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3539094 A (CHARLES E. O'CONNOR), 10 November 1970 (10.11.70), figures 1,2,6	1,2,4-6
Y	--	3,7
Y	US 2447243 A (W.G. FREEL ET AL), 17 August 1948 (17.08.48), figures 3,12,15	3,7
A	--	1,2,4-6
A	FR 1423121 A (M. PIERRE, RAYMOND, MAURICE LOMBARD), 22 November 1965 (22.11.65), figures 1-3	1-7
	--	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search 11 April 2000		Date of mailing of the international search report 13 -04- 2000
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86		Authorized officer Anna Ahlander/Elis Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/02266

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0731032 A1 (GSF VERPAKKINGEN B.V.), 11 Sept 1996 (11.09.96), figures 2,5 --	1-7
A	US 3744706 A (FRANK COLANTONI ET AL), 10 July 1973 (10.07.73), figures 1,5 --	1-7
X	US 1903461 A (I.C. KELLER), 11 April 1933 (11.04.33), figures 1,2	8-10
A	--	11-16
X	US 2647621 A (D.T. BOWDEN), 4 August 1953 (04.08.53), figures 8,10	8-10
A	--	11-16
A	US 4592464 A (DAVID G. LONDAGIN), 3 June 1986 (03.06.86), figures 1,5 --	8-16
A	US 2353376 A (C.C. VATTER), 11 July 1944 (11.07.44), figure 2 --	17-19
A	US 5223121 A (ROBERT G. DICKIE ET AL), 29 June 1993 (29.06.93), figures 2,3 --	17-19
A	US 5813523 A (DAVID FREDERIC GNADT ET AL), 29 Sept 1998 (29.09.98), figure 6 --	17-19
A	US 5823352 A (J. JOE MENA ET AL), 20 October 1998 (20.10.98), figure 2 -- -----	17-19

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/02266

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see next page

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/02266

This application contains the following inventions or group of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1.

I: Claims 1-7: a hollow walled display tray.

II: Claim 8-16: a lid.

III: Claim 17-19: a lid and bottom insert.

The inventions are distinct, each from the other because of the following reasons:

The special technical feature of invention I is a display tray with hollow walls.

The special technical feature of invention II is a display box lid. The lid is pivoted to a closed position closing the box or to an upright position, exposing the contents of the box. In the upright position, the side flaps of the lid are located over the side walls of the box. In closed position, the side flaps of the lid are located inside the box.

The special technical feature of invention III is a lid and bottom insert. The insert comprises a bottom that is connected to a double folded lid.

Inventions I, II and III lack the same or corresponding special technical features (Rule 13.2).

:

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 99/02266

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US	3539094	A	10/11/70	NONE	
US	2447243	A	17/08/48	NONE	
FR	1423121	A	22/11/65	NONE	
EP	0731032	A1	11/09/96	AU 4459796 A DE 69601474 D,T ES 2130741 T NO 960913 A	15/01/97 07/10/99 01/07/99 09/09/96
US	3744706	A	10/07/73	AR 193953 A AT 80073 A AT 337598 B AU 468482 B AU 5089673 A BE 794905 A BR 7303806 D CA 983449 A CH 557764 A CH 557765 A DE 2323965 A,B,C ES 412924 A FR 2187162 A GB 1391740 A IL 41266 A IT 978960 B JP 49031481 A LU 66952 A NL 148846 B NL 7300318 A SE 398865 B,C ZA 7300044 A	31/05/73 15/10/76 11/07/77 15/01/76 11/07/74 02/08/73 00/00/00 10/02/76 15/01/75 15/01/75 06/12/73 16/01/76 11/01/74 23/04/75 10/02/75 20/09/74 20/03/74 17/08/73 15/03/76 28/11/73 23/01/78 26/09/73
US	1903461	A	11/04/33	NONE	
US	2647621	A	04/08/53	NONE	
US	4592464	A	03/06/86	NONE	
US	2353376	A	11/07/44	NONE	
US	5223121	A	29/06/93	NONE	
US	5813523	A	29/09/98	NONE	
US	5823352	A	20/10/98	NONE	



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